Figure 1A **CLUSTAL W (1.82) multiple nucleotide sequence alignment of T1Rs**

```
mouseTas1r2     ATGGGACCCCAGGCGAG------GACACTCCATTTGCTGTTTCTCCTGCTGCATGCTCTG 54
ratTas1r2       ATGGGTCCCCAGGCAAG------GACACTCTGCTTGCTGTCTCTCCTGCTGCATGTTCTG 54
humanTAS1R2     ATGGGGCCCAGGGCAAA------GACCATCTGCTCCCTGTTCTTCCTCCTATGGGTCCTG 54
catTas1r2       ATGGGACCCCGGGCCAG------GGAAGTCTGCTGCTTCATCATCCTGCCGCGGCTCCTG 54
mouseTas1r1     ATGCTTTTCTGGGCAGCTCACCTGCTGCTCAGCCTGCAGCTGGCCGTTGCTTACTGCTGG 60
ratTas1r1       ATGCTCTTCTGGGCTGCTCACCTGCTGCTCAGCCTGCAGTTGGTC------TACTGCTGG 54
humanTAS1R1     ATGCTGCTCTGCACGGCTCGCCTGGT---CGGCCTGCAGCTTCTCATTTCCTGCTGCTGG 57
catTas1r1       ATGTCACTCCCGGCGGCTCACCTGGT---CGGCCTGCAGCTCTCCCTCTCCTGCTGCTGG 57
mouseTas1r3     ATGCCAGCTTTGGCTAT---CATGGGTCTCA------------GCCTGGCTGCTTTCCTG 45
ratTas1r3       ATGCCGGGTTTGGCTAT---CTTGGGCCTCA------------GTCTGGCTGCTTTCCTG 45
catTas1r3       ATGCCCGGCCTCGCTCT---CCTGGGCCTCACGGCTCTCCTGGGCCTCACGGCTCTCTTG 57
humanTAS1R3     ATGCTGGGCCCTGCTGT---CCTGGGCCTCA------------GCCTCTGGGCTCTCCTG 45
                ***          *         *     *                          *

mouseTas1r2     C--CTAAGCCAGTCATGCTGGTAGGGAAC-TC---CGACTTTCACCTGGCTGGGGACTAC 108
ratTas1r2       C--CTAAGCCAGGCAAGCTGGTAGAGAAC-TC---TGACTTCCACCTGGCCGGGGACTAC 108
humanTAS1R2     G--CTGAGCC----------GGCTGAGAAC-TC---GGACTTCTACCTGCCTGGGGATTAC 99
catTas1r2       G--CTGAGCC----------GGCTGAGAAC-TC---AGACTTCTACTTGGCTGGGGATTAC 99
mouseTas1r1     G--CTTTCAGCTGCCAAAGGACAGAATCC-TCTCCAGGTTTCAGCCTCCCTGGGGACTTC 117
ratTas1r1       G--CTTTCAGCTGCCAAAGGACAGAGTCC-TCTCCAGGCTTCAGCCTTCCTGGGGACTTC 111
humanTAS1R1     G--CCTTTGCCTGCCATAGCACGGAGTCT-TCTCCTGACTTCACCCTCCCCGGAGATTAC 114
catTas1r1       G--CTCTCAGCTGCCACAGCACAGAGACG-TCTGCCGACTTCAGCCTCCCTGGGGATTAC 114
mouseTas1r3     GAGCTTGGGATGGGGGCCTCTTTGTGTCTGTCACAGCAATTCAAGGCACAAGGGGACTAC 105
ratTas1r3       GAGCTTGGGATGGGGTCCTCTTTGTGTCTGTCACAGCAATTCAAGGCACAAGGGGACTAT 105
catTas1r3       GACCACGGGGAGGGCGCAACGTCCTGCTTGTCACAGCAGCTCAGGATGCAGGGGGACTAT 117
humanTAS1R3     CACCCTGGGACGGGGGCCCCATTGTGCCTGTCACAGCAACTTAGGATGAAGGGGGACTAC 105
                   *                          **        *          ** ** *

mouseTas1r2     CTCCTGGGTGGCCTCTTTACCCTCCATGCCAACGTGAAGAGCGTCTCTCACCTCAGCTAC 168
ratTas1r2       CTCCTGGGTGGCCTCTTTACCCTCCATGCCAACGTGAAGAGCATCTCCCACCTCAGCTAC 168
humanTAS1R2     CTCCTGGGTGGCCTCTTCTCCCTCCATGCCAACATGAAGGGCATTGTTCACCTTAACTTC 159
catTas1r2       TTCCTCGGCGGCCTCTTCACCCTCCATGCCAACGTGAAGGGCATCGTCCACCTCAACCTC 159
mouseTas1r1     CTCCTGGCAGGCCTGTTCTCCCTCCATGCTGACTGTCTGCAGGTGAGACACA--GACCTC 175
ratTas1r1       CTCCTTGCAGGTCTGTTCTCCCTCCATGGTGACTGTCTGCAGGTGAGACACA--GACCTC 169
humanTAS1R1     CTCCTGGCAGGCCTGTTCCCTCTCCATTCTGGCTGTCTGCAGGTGAGGCACA--GACCCG 172
catTas1r1       CTCCTCGCAGGTCTGTTCCCTCTGCACTCTGACTGTCCGGGCGTGAGGCACC--GGCCCA 172
mouseTas1r3     ATACTGGGCGGGCTATTTCCCCTGGGCTCAACCGAGGAGGCCACTCTCAACCAGAGAACA 165
ratTas1r3       ATATTGGGTGGACTATTTCCCCTGGGCACAACTGAGGAGGCCACTCTCAACCAGAGAACA 165
catTas1r3       GTGCTGGGTGGGCTCTTCCCTCTGGGCTCTGCCGAGGGTACAGGTCTTGGCGACGGGCTG 177
humanTAS1R3     GTGCTGGGGGGGCTGTTCCCCCTGGGCGAGGCCGAGGAGGCTGGCCTCCGCAGCCGGACA 165
                 *  * *  ** ** **  * **                          *

mouseTas1r2     CTGCAGGTGCCCAAGTGCAATGAGTACAACA---TGAAGGTCTTGGGCTACAACCTCATG 225
ratTas1r2       CTGCAGGTGCCCAAGTGCAATGAGTTCACCA---TGAAGGTGTTGGGCTACAACCTCATG 225
humanTAS1R2     CTGCAGGTGCCCATGTGCAAGGAGTATGAAG---TGAAGGTGATAGGCTACAACCTCATG 216
catTas1r2       CTGCAGGTGCCCCAGTGCAAGGAGTATGAAA---TAAAGGTGTTGGGCTACGATCTCATG 216
mouseTas1r1     T----GGTGACAAGTTGTGACAGGTCTGACAGCTTCAACGGCCATGGCTATCACCTCTTC 231
ratTas1r1       T----GGTGACAAGTTGTGACAGGCCCGACAGCTTCAACGGCCATGGCTACCACCTCTTC 225
humanTAS1R1     A----GGTGACCCTGTGTGACAGGTCTTGTAGCTTCAATGAGCATGGCTACCACCTCTTC 228
catTas1r1       C----GGTGACCCTCTGTGACAGGCCCGACAGCTTCAACGGTCACGGCTACCACCTCTTC 228
mouseTas1r3     C------AACCCAACAGCATCCCGTGCAACAGGTTCTCACCCCTTGGTTTGTTCCTGGCC 219
ratTas1r3       C------AGCCCAACGGCATCCTATGTACCAGGTTCTCGCCCCTTGGTTTGTTCCTGGCC 219
catTas1r3       C------AGCCCAATGCCACCGTGTGCACCAGGTTCTCGTCTCTGGGCCTGCTCTGGGCG 231
humanTAS1R3     C------GGCCCAGCAGCCCTGTGTGCACCAGGTTCTCCTCAAACGGCCTGCTCTGGGCA 219
                       *                          *          **

mouseTas1r2     CAGGCCATGCGATTCGCCGTGGAGGAAATCAACAACTGTAGCTCTCTGCTGCCCGGCGTG 285
ratTas1r2       CAGGCCATGCGTTTCGCTGTGGAGGAGATCAACAACTGTAGCTCCCTGCTACCCGGCGTG 285
humanTAS1R2     CAGGCCATGCGCTTCGCGGTGGAGGAGATCAACAATGACAGCAGCCTGCTGCCTGGTGTG 276
catTas1r2       CAGGCCATGTGCTTTGCAGGGGAGGAGATCAATAGCCAGAGCAGCCTGCTGCCTGGCGTG 276
mouseTas1r1     CAAGCCATGCGGTTCACCGTTGAGGAGATAAACAACTCCACAGCTCTGCTTCCCAACATC 291
ratTas1r1       CAAGCCATGCGGTTCACTGTTGAGGAGATAAACAACTCCTCGGCCCTGCTTCCCAACATC 285
humanTAS1R1     CAGGCTATGCGGCTTGGGGTTGAGGAGATAAACAACTCCACGGCCCTGCTGCCCAACATC 288
catTas1r1       CAGGCCATGCGGTTTGGCATCGAGGAGATAAACAACTCCACGGCCCTCCTGCCGAACGTC 288
mouseTas1r3     ATGGCTATGAAGATGGCTGTGGAGGAGATCAACAATGGATCTGCCTTGCTCCCTGGGCTG 279
ratTas1r3       ATGGCTATGAAGATGGCTGTAGAGGAGATCAACAATGGATCTGCCTTGCTCCCTGGGCTG 279
catTas1r3       CTGGCCGTGAAGATGGCGGTGGAGGAGATCAACAACGGGTCGGCCCTGCTGCCCGGGCTG 291
humanTAS1R3     CTGGCCATGAAAATGGCCGTGGAGGAGATCAACAACAAGTCGGATCTGCTGCCCGGGCTG 279
                   **  **    *       ***** ** ** *           * ** **     *
```

Figure 1B

```
mouseTas1r2     CTGCTCGGCTACGAGATGGTGGATGTCTGCTACCTCTCC---AACAATATCCAGCCTGGG 342
ratTas1r2       CTGCTCGGCTACGAGATGGTGGATGTCTGTTACCTCTCC---AACAATATCCACCCTGGG 342
humanTAS1R2     CTGCTGGGCTATGAGATCGTGGATGTGTGCTACATCTCC---AACAATGTCCAGCCGGTG 333
catTas1r2       CTGCTGGGCTACAAAATGGTGGATGTCAGCTACATCTCC---AACAATGTCCAGCCCGTG 333
mouseTas1r1     ACCCTGGGGTATGAACTGTATGACGTGTGCTCAGAGTCT---TCCAATGTCTATGCCACC 348
ratTas1r1       ACCCTGGGGTATGAGCTGTACGACGTGTGCTCAGAATCT---GCCAATGTGTATGCCACC 342
humanTAS1R1     ACCCTGGGGTACCAGCTGTATGATGTGTGTTCTGACTCT---GCCAATGTGTATGCCACG 345
catTas1r1       ACCCTGGGATACCAGCTGTACGACGTGTGCTCGGAGTCT---GCCAACGTGTATGCCACA 345
mouseTas1r3     CGGCTGGGCTATGACCTATTTGACACATGCTCCGAGCCAGTGGTCACCATGAAATCCAGT 339
ratTas1r3       CGACTGGGCTATGACCTGTTTGACACATGCTCAGAGCCAGTGGTCACCATGAAGCCCAGC 339
catTas1r3       CACCTGGGCTATGACCTCTTTGACACGTGTTCAGAGCCCATGGTGGCCATGAAGCCCAGC 351
humanTAS1R3     CGCCTGGGCTACGACCTCTTTGATACGTGCTCGGAGCCTGTGGTGGCCATGAAGCCCAGC 339
                   ** ** **  *  *    **     * *      *           *  *  *

mouseTas1r2     CTCTACTTCCTGTC---ACAGATAGATGACTTCCTGCCCATCCTCAAAGACTACAGCCAG 399
ratTas1r2       CTCTACTTCCTGGC---ACAGGACGACGACCTCCTGCCCATCCTCAAAGACTACAGCCAG 399
humanTAS1R2     CTCTACTTCCTGGC---ACACGAGGACAACCTCCTTCCCATCCAAGAGGACTACAGTAAC 390
catTas1r2       CTCCACTTCCCGGC---AAAGGAGGACTGTTCCTTGCCCATCCAGGAGGACTACAGCCAC 390
mouseTas1r1     CTGAGGGTGCTCGCCCAGCAAGGGACAGGCCACCTAGAGATGCAGAGAGATCTTCGCAAC 408
ratTas1r1       CTGAGGGTGCTTGCCCTGCAAGGGCCCCGCCACATAGAGATACAGAAAGACCTTCGCAAC 402
humanTAS1R1     CTGAGAGTGCTCTCCCTGCCAGGGCAACACCACATAGAGCTCCAAGGAGACCTTCTCCAC 405
catTas1r1       CTAAACGTGCTCTCCCTGCTGGGGACACATCACGTAGAGATCCGAGCAGACCCTTCCCAC 405
mouseTas1r3     CTCATGTTCCTGGCCAAGGTGGGCAGTCAAAGCATTGCTGCCTACTGCAACTACACACAG 399
ratTas1r3       CTCATGTTCATGGCCAAGGTGGGAAGTCAAAGCATTGCTGCCTACTGCAACTACACACAG 399
catTas1r3       CTCGTGTTCATGGCCAAAGCAGGCAGCTGCAGCATTGCCGCCTACTGCAATTACACACAG 411
humanTAS1R3     CTCATGTTCCTGGCCAAGGCAGGCAGCCGCGACATCGCCGCCTACTGCAACTACACGCAG 399
                **     *     *                    * *              *        *

mouseTas1r2     TACAGGCCCCAAGTGGTGGCCGTCATTGGCCCAGACAACTCTGAGTCCGCCATCACCGTG 459
ratTas1r2       TACATGCCCCACGTGGTGGCTGTCATTGGCCCCGACAACTCTGAGTCCGCCATTACCGTG 459
humanTAS1R2     TACATTTCCCGTGTGGTGGCTGTCATTGGCCCTGACAACTCCGAGTCTGTCATGACTGTG 450
catTas1r2       TGTGTGCCCCGTGTGGTGGCTGTCATTGGTCCTGGCAACTCTGAGTCCACTGTGACTGTG 450
mouseTas1r1     CACTCCTCCAAGGTGGTGGCACTCATTGGGCCTGATAACACTGACCACGCTGTCACCACT 468
ratTas1r1       CACTCCTCCAAGGTGGTGGCCTTCATCGGGCCTGACAACACTGACCACGCTGTCACTACC 462
humanTAS1R1     TATTCCCCTACGGTGCTGGCAGTGATTGGGCCTGACAGCACCAACCGTGCTGCCACCACA 465
catTas1r1       TATTCGCCTGCCGCCCTGGCTGTCATTGGGCCTGACACCACCAACCACGCAGCCACCACT 465
mouseTas1r3     TACCAACCCCGTGTGCTGGCTGTCATCGGCCCCCACTCATCAGAGCTTGCCCTCATTACA 459
ratTas1r3       TACCAACCCCGTGTGCTGGCTGTCATTGGTCCCCACTCATCAGAGCTTGCCCTCATTACA 459
catTas1r3       TACCAGCCCCGCGTGCTGGCCGTCATCGGGCCCCACTCGTCTGAGCTCGCCCTCGTCACC 471
humanTAS1R3     TACCAGCCCCGTGTGCTGGCTGTCATCGGGCCCCACTCGTCAGAGCTCGCCATGGTCACC 459
                       *    *   ****  * ** ** **        *  *

mouseTas1r2     TCCAACATTCTCTCCTACTTCCTCGTGCCACAGGTCACATATAGCGCCATCACCGACAAG 519
ratTas1r2       TCCAACATTCTCTCTCATTTCCTCATCCCACAGATCACATACAGCGCCATCTCCGACAAG 519
humanTAS1R2     GCCAACTTCCTCTCCCTATTTCTCCTTCCACAGATCACCTACAGCGCCATCAGCGATGAG 510
catTas1r2       GCCCGCTTCCTCTCTCTCTTCCTCCTTCCACAGATCACCTACAGCGCCATCAGTGACGAG 510
mouseTas1r1     GCTGCCCTGCTGAGCCCTTTTCTGATGCCCCTGGTCAGCTATGAGGCGAGCAGCGTGATC 528
ratTas1r1       GCTGCCTTGCTGGGTCCTTTCCTGATGCCCCTGGTCAGCTATGAGGCAAGCAGCGTGGTA 522
humanTAS1R1     GCCGCCCTGCTGAGCCCTTTCCTGGTGCCCATGATTAGCTATGCGGCCAGCAGCGAGACG 525
catTas1r1       GCAGCCCTGCTGAGCCCCTTCCTGGTGCCCCTGATCAGCTACGAGGCCAGCAGCGTGACG 525
mouseTas1r3     GGCAAGTTCTTCAGCTTCTTCCTCATGCCACAGGTCAGCTATAGTGCCAGCATGGATCGG 519
ratTas1r3       GGCAAGTTCTTCAGCTTCTTCCTCATGCCACAGGTCAGCTATAGTGCCAGCATGGATCGG 519
catTas1r3       GGCAAGTTCTTCAGCTTCTTCCTTGTGCCTCAGGTCAGCTACGGCGCCAGCACCGACCGG 531
humanTAS1R3     GGCAAGTTCTTCAGCTTCTTCCTCATGCCCCAGGTCAGCTACGGTGCTAGCATGGAGCTG 519
                       *  *       ** **  * **   * * *  **    ** * *   *

mouseTas1r2     CTGCGAGACAAGCGGCGCTTCCCTGCCATGCTGCGCACTGTGCCCAGCGCCACCCACCAC 579
ratTas1r2       CTGCGGGACAAGCGGCACTTCCCTAGCATGCTACGCACAGTGCCCAGCGCCACCCACCAC 579
humanTAS1R2     CTGCGAGACAAGGTGCGCTTCCCGGCTTTGCTGCGTACCACACCCAGCGCCGACCACCAC 570
catTas1r2       CTACGGGACAAGCAGCGCTTCCCGGCCCTTCTGCCCACAGCGCCGGGCGCCGATCACCAG 570
mouseTas1r1     CTCAGTGGGAAGCGCAAGTTCCCGTCCTTCTTGCGCACCATCCCCAGCGATAAGTACCAG 588
ratTas1r1       CTCAGTGCCAAGCGCAAGTTCCCGTCTTTCCTTCGTACCGTCCCCAGTGACCGGCACCAG 582
humanTAS1R1     CTCAGCGTGAAGCGGCAGTATCCCTCTTTCCTGCGCACCATCCCCAATGACAAGTACCAG 585
catTas1r1       CTCGGAGTGAAGCGGCATTACCCCTCGTTTCTGCGCACCATCCCCAGCGACAAGCACCAG 585
mouseTas1r3     CTAAGTGACCGGGAAACGTTTCCATCCTTCTTCCGCACAGTGCCCAGTGACCGGGTGCAG 579
ratTas1r3       CTAAGTGACCGGGAAACATTTCCATCCTTCTTCCGCACAGTGCCCAGTGACCGGGTGCAG 579
catTas1r3       CTGAGCAACCGGGAGATCTTCCCGTCCTTCTTCCGCACGGTGCCCAGCGACCAGGTGCAG 591
humanTAS1R3     CTGAGCGCCCGGGAGACCTTCCCCTCCTTCTTCCGCACCGTGCCCAGCGACCGTGTGCAG 579
                **  *      *      *  **     *  * *  **    **    *        **
```

Figure 1C

```
mouseTas1r2     ATCGAGGCCATGGTGCAACTGATGGTTCACTTCCAGTGGAACTGGATCGTGGTGCTGGTG 639
ratTas1r2       ATCGAGGCCATGGTGCAGCTGATGGTTCACTTCCAATGGAACTGGATTGTGGTGCTGGTG 639
humanTAS1R2     GTCGAGGCCATGGTGCAGCTGATGCTGCACTTCCGCTGGAACTGGATCATTGTGCTGGTG 630
catTas1r2       ATCGAGGCCATGGTGCAGCTGATGTTGTACTTCCGCCGGAACTGGATCATCGCGCTGGTG 630
mouseTas1r1     GTGGAAGTCATAGTGCGGCTGCTGCAGAGCTTCGGCTGGGTCTGGATCTCGCTCGTTGGC 648
ratTas1r1       GTGGAGGTCATGGTGCAGCTGCTGCAGAGTTTTGGGTGGGTGTGGATCTCGCTCATTGGC 642
humanTAS1R1     GTGGAGACCATGGTGCTGCTGCTGCAGAAGTTCGGGTGGACCTGGATCTCTCTGGTTGGC 645
catTas1r1       GTGGAGGCCATGGTGCTGCTGCTGCAGAGCTTCGGGTGGGTCTGGATCTCGGTGGTCGGC 645
mouseTas1r3     CTGCAGGCAGTTGTGACTCTGTTGCAGAACTTCAGCTGGAACTGGGTGGCCGCCTTAGGG 639
ratTas1r3       CTGCAGGCCGTTGTGACACTGTTGCAGAATTTCAGCTGGAACTGGGTGGCTGCCTTAGGT 639
catTas1r3       GTGGCGGCCATGGTGGAGCTGCTGGAGGAGCTCGGCTGGAACTGGGTGGCGGCGGTGGGT 651
humanTAS1R3     CTGACGGCCGCCGCGGAGCTGCTGCAGGAGTTCGGCTGGAACTGGGTGGCCGCCCTGGGC 639
                 *          * *   *** **       *     **   *** *        * *

mouseTas1r2     AGCGATGACGATTATGGCCGAGAGAACAGCCACCTGCTGAGCCAGCGTCTGACCAACACT 699
ratTas1r2       AGCGACGACGATTACGGCCGCGAGAACAGCCACCTGTTGAGCCAGCGTCTGACCAAAACG 699
humanTAS1R2     AGCAGCGACACCTATGGCCGCGACAATGGCCAGCTGCTTGGCGAGCGCGTGGCCCGG--- 687
catTas1r2       AGCAGCGGCGACTGCGGCCGCGACGACAGCCAGCTGCTCAGCGATCGCCCGGCCGGC--- 687
mouseTas1r1     AGCTATGGTGACTACGGGCAGCTGGGCGTACAGGCGCTGGAGGAGC---TGGCCACTCCA 705
ratTas1r1       AGCTACGGTGATTACGGGCAGCTGGGTGTGCAGGCGCTGGAGGAGC---TGGCCGTGCCC 699
humanTAS1R1     AGCAGTGACGACTATGGGCAGCTAGGGGTGCAGGCACTGGAGAACC---AGGCCACTGGT 702
catTas1r1       AGCGACGGCGACTACGGGCAGCTGGGGGTGCAGGCGCTGGAGGAGC---AGGCCACCCAG 702
mouseTas1r3     AGTGATGATGACTATGGCCGGGAAGGTCTGAGCATCTTTTCTAGTC---TGGCCAATGCA 696
ratTas1r3       AGTGATGATGACTATGGCCGGGAAGGTCTGAGCATCTTTTCTGGTC---TGGCCAACTCA 696
catTas1r3       AGTGACGACGAGTATGGCCGGCAGGGCCTGAGCCTCTTCTCCGGCC---TGGCCAGCGCC 708
humanTAS1R3     AGCGACGACGAGTACGGCCGGCAGGGCCTGAGCATCTTCTCGGCCC---TGGCCGCGGCA 696
                **    *     *  ** *                    *       *    * **

mouseTas1r2     GGCGATATCTGCATTGCCTTCCAGGAGGTTCTGCCTGTACCAGAACCCAACCAGGCCGTG 759
ratTas1r2       AGCGACATCTGCATTGCCTTCCAGGAGGTTCTGCCCATACCTGAGTCCAGCCAGGTCATG 759
humanTAS1R2     CGCGACATCTGCATCGCCTTCCAGGAGACGCTGCCCACACTGCAGCCCAACCAGAACATG 747
catTas1r2       GGCGACACCTGCATCGCCTTCCGGGAGACGCTGCCCATGCCCCAGCCCAACCAGGCGGTG 747
mouseTas1r1     CGGGGCATCTGCGTCGCCTTCAAGGACGTGGTGCCTCT--CTCCGCCCAGGCGGGTGACC 763
ratTas1r1       CGGGGCATCTGCGTCGCCTTCAAGGACATCGTGCCTTT--CTCTGCCCGGGTGGGTGACC 757
humanTAS1R1     CAGGGGATCTGCATTGCTTTCAAGGACATCATGCCCTT--CTCTGCCCAGGTGGGCGATG 760
catTas1r1       CAGGGCATCTGCGTTGCCTTCAAGGACATCATCCCCTT--CTCTGCCCGGCCGGGCGACG 760
mouseTas1r3     CGAGGTATCTGCATCGCACATGAGGGCCTGGTGCCACAA-CATGACACTAGTGGCCAACA 755
ratTas1r3       CGAGGTATCTGCATTGCACACGAGGGCCTGGTGCCACAA-CATGACACTAGTGGCCAACA 755
catTas1r3       AGGGGCATCTGCATCGCGCATGAGGGCCTGGTGCCACTG-C-CGCCA--GGCAGCCTGCG 764
humanTAS1R3     CGCGGCATCTGCATCGCGCACGAGGGCCTGGTGCCGCTG-CCCCGTGCCGATGACTCGCG 755
                   *  * **** * **       **       * **

mouseTas1r2     AGGCCTGAGGAGCAGGACCAACTGGACAACATCCTGGACAAGCTGCGGC---GGACCTCG 816
ratTas1r2       AGGTCCGAGGAGCAGAGACAACTGGACAACATCCTGGACAAGCTGCGGC---GGACCTCG 816
humanTAS1R2     ACGTCAGAGGAGCGCCAGCGCCTGGTGACCATTGTGGACAAGCTGCAGC---AGAGCACA 804
catTas1r2       ACGCAGTGGGAGCGCCGGCGCCTGAAGGCCATCGTGGACGAGCAGCAGCGGCAGAGCTCT 807
mouseTas1r1     C-------AAGGATGCAGCGCATGATGCTGCGTCTGGCTCGAGCCA--------GGACCACC 810
ratTas1r1       C-------GAGGATGCAGAGCATGATGCAGCATCTGGCTCAGGCCA--------GGACCACC 804
humanTAS1R1     A-------GAGGATGCAGTGCCTCATGCGCCACCTGGCCCAGGCCG--------GGGCCACC 807
catTas1r1       A-------GAGGATGCAGAGCATCATGCACCACCTGGCCCGAGCGA--------GGACCACC 807
mouseTas1r3     G-------TTGGGCAAGGTGCTGGATGTACTACGCCAAGTGAACCA---------AAGTAAA 801
ratTas1r3       A-------TTGGGCAAGGTGGTGGATGTGCTACGCCAAGTGAACCA---------AAGCAAA 801
catTas1r3       G-------CTGGGCGCCCTACAGGGCCTGCTGCGCCAGGTGAACCA---------GAGCAGC 810
humanTAS1R3     G-------CTGGGGAAGGTGCAGGACGTCCTGCACCAGGTGAACCA---------GAGCAGC 801
                          *                                   *

mouseTas1r2     GCGCGTGTGGTGGTGATATTCTCGCCAGAGCTGAGCCTGCACAACTTCTTCCGCGAGGTG 876
ratTas1r2       GCGCGCGTCGTGGTGGTGTTCTCGCCCGAGCTGAGCCTGTATAGCTTCTTTCACGAGGTG 876
humanTAS1R2     GCGCGCGTCGTGGTCGTGTTCTCGCCCGACCTGACCCTGTACCACTTCTTCAATGAGGTG 864
catTas1r2       GCGCGCGTCGTGGTCCTGCTGTCGCCAAAGCTGGTCCTGCACAACTTCTTCCGCGAGGTG 867
mouseTas1r1     GTG---GTCGTGGTCTT-CTCTAACCGGCACCTGGCTGGAGTG--TTCTTCAGGTCTGTG 864
ratTas1r1       GTG---GTTGTGGTCTT-CTCTAACCGGCACCTGGCTAGAGTG--TTCTTCAGGTCCGTG 858
humanTAS1R1     GTC---GTGGTTGTTTT-TTCCAGCCGGCAGTTGGCCAGGGTG--TTTTTCGAGTCCGTG 861
catTas1r1       GTT---GTGGTCGTTTT-CTCCAGCAGGCAGCTGGCCAGGGTG--TTCTTTGAGTCGGTG 861
mouseTas1r3     GTACAAGTGGTGGTGCTGTTTGCCTCTGCCCGTGCTGTCTACTCCCTTTTTAGTTACAGC 861
ratTas1r3       GTACAGGTGGTGGTGCTGTTTGCATCTGCCCGTGCTGTCTACTCCCTTTTTAGCTACAGC 861
catTas1r3       GTGCAGGTGGTGGTGCTGTTCTCCTCCGCCCACGCGGCCCGCACCCTCTTCAGCTACAGC 870
humanTAS1R3     GTGCAGGTGGTGCTGCTGTTCGCCTCCGTGCACGCCGCCCACGCCCTCTTCAACTACAGC 861
                *     ** **  *  *  *                                * **
```

Figure 1D

```
mouseTas1r2     CTGCGCTGGAACTTCACAGGCTTTGTGTGGATTGCCTCTGAGTCCTGGGCCATCGACCCT 936
ratTas1r2       CTCCGCTGGAACTTCACGGGTTTTGTGTGGATCGCCTCTGAGTCCTGGGCTATCGACCCA 936
humanTAS1R2     CTGCGCCAGAACTTCACGGGCGCCGTGTGGATCGCCTCCGAGTCCTGGGCCATCGACCCG 924
catTas1r2       CTCCGCCAGAACCTCACGGGCGTCGTGCGGATCGCCTCCGAGTCCTGGGCCATCGACCCG 927
mouseTas1r1     GTGCTGGCCAACCTGACTGGCAAAGTGTGGATCGCCTCCGAAGACTGGGCCATCT-CCAC 923
ratTas1r1       GTGCTGGCCAACCTGACTGGCAAAGTGTGGGTCGCCTCAGAAGACTGGGCCATCT-CCAC 917
humanTAS1R1     GTGCTGACCAACCTGACTGGCAAGGTGTGGGTCGCCTCAGAAGCCTGGGCCCTCT-CCAG 920
catTas1r1       GTGCTGGCCAACCTGACTGCCAAGGTGTGGATCGCCTCAGAAGACTGGGCCATCT-CTAG 920
mouseTas1r3     ATCCATCATGGCCTCTCACCCAAGGTATGGGTGGCCAGTGAGTCTTGGCTGACAT-CTGA 920
ratTas1r3       ATCCTTCATGACCTCTCACCCAAGGTATGGGTGGCCAGTGAGTCCTGGCTGACCT-CTGA 920
catTas1r3       ATCCGCTGCAAGCTCTCACCCAAGGTGTGGGTGGCCAGCGAGGCCTGGCTGACCT-CAGA 929
humanTAS1R3     ATCAGCAGCAGGCTCTCGCCCAAGGTGTGGGTGGCCAGCGAGGCCTGGCTGACCT-CTGA 920
                 *           *  *       **  ** * ***   **    ***        *

mouseTas1r2     GTTCTACACAAC-----CTCACAGAGCTGCGCCACACGGGCACTTTCCTGGGCGTCACCA 991
ratTas1r2       GTTCTGCATAAC-----CTCACGGAGCTGCGCCACACGGGTACTTTTCTGGGCGTCACCA 991
humanTAS1R2     GTCCTGCACAAC-----CTCACGGAGCTGGGCCACTTGGGCACCTTCCTGGGCATCACCA 979
catTas1r2       GTCCTGCACGACAGGCCCACGCGCTGCACAGCCTCCTGGGCTGCACCCAGACCAGCAGC- 986
mouseTas1r1     GTACATCACCAA----TGTGCCCGGGATCCAGGGCATTGGGACGGTGCTGGGGGTGGCCA 979
ratTas1r1       GTACATCACCAG----CGTGACTGGGATCCAAGGCATTGGGACGGTGCTCGGTGTGGCCG 973
humanTAS1R1     GCACATCACTGG----GGTGCCCGGGATCCAGCGCATTGGGATGGTGCTGGGCGTGGCCA 976
catTas1r1       ACACATCAGCAA----TGTGCCCGGGATCCAGGGCATTGGCACGGTGCTGGGTGTGGCCA 976
mouseTas1r3     CCTGGTCATGAC----ACTTCCCAATATTGCCCGTGTGGGCACTGTGCTTGGGTTTTTGC 976
ratTas1r3       CCTGGTCATGAC----ACTTCCCAATATTGCCCGTGTGGGCACTGTTCTTGGGTTTCTGC 976
catTas1r3       CCTGGTCATGAC----GCTGCCCGGCATGCCTGGGGTGGGCACCGTGCTGGGCTTCCTGC 985
humanTAS1R3     CCTGGTCATGGG----GCTGCCCGGCATGGCCCAGATGGGCACGGTGCTTGGCTTCCTCC 976
                      **             *                **       *

mouseTas1r2     TCCAGAGGGTGTCCATCCCTGGCTTCAGCCAGTTCCGAGTGCGCCAC---GACAAGCCAG 1048
ratTas1r2       TCCAGAGGGTGTCCATCCCTGGCTTCAGTCAGTTCCGAGTGCGCCGT---GACAAGCCAG 1048
humanTAS1R2     TCCAGAGCGTGCCCATCCCGGGCTTCAGTGAGTTCCGCGAGTGGGGC---CCACAGGCTG 1036
catTas1r2       TCCGGGTCGT--CTATCCCTGGCA--GGTGAGGCCC--------CAC---CCACGGA--G 1029
mouseTas1r1     TCCAGCAGAGACAAGTCCCTGGCCTGAAGGAGTTTGAAGAGTCCTAT---GTCCAGGCAG 1036
ratTas1r1       TCCAGCAGAGACAAGTCCCTGGGCTGAAGGAGTTTGAGGAGTCTTAT---GTCAGGGCTG 1030
humanTAS1R1     TCCAGAAGAGGGCTGTCCCTGGCCTGAAGGCGTTTGAAGAAGCCTAT---GCCCGGGCAG 1033
catTas1r1       TCCAGCAGAGGCTTGTCCCTGGCCTGAAGGAGTTTGAAGAGGCCTAT---GTCCAGGCAG 1033
mouseTas1r3     AGCGGGGTGCCCTACTGCCTGAATTTTCCCATTATGTGGAGACTCACCTTGCCCTGGCCG 1036
ratTas1r3       AGCGCGGTGCCCTACTGCCTGAATTTTCCCATTATGTGGAGACTCGCCTTGCCCTAGCTG 1036
catTas1r3       AGCAGGGCGCCCCGATGCCGGAGTTCCCATCCTACGTGCGGACCCGCCTGGCCCTGGCCG 1045
humanTAS1R3     AGAGGGGTGCCCAGCTGCACGAGTTCCCCCAGTACGTGAAGACGCACCTGGCCCTGGCCA 1036
                          * *  *

mouseTas1r2     AGTATCCCATGCCTA--ACGAGACCAGCCTG----------AGGACTACCTG-TAACCAG 1095
ratTas1r2       GGTATCCCGTGCCTA--ACACGACCAACCTG----------CGGACGACCTG-CAACCAG 1095
humanTAS1R2     GGCCGCCACCCCTCA--GCAGGACCAGCCAG----------AGCTATACCTG-CAACCAG 1083
catTas1r2       AGTCGGGGCCACACAC-GCAGGCGCCGCCAC----------AGCCCTGAGTGGTTGCCAT 1078
mouseTas1r1     TGATGGGTGCTCCCAGAACTTGCCCAGAGGG----------GTCCTGGTGCGGCACTAAC 1086
ratTas1r1       TAACAGCTGCTCCCAGCGCTTGCCCGGAGGG----------GTCCTGGTGCAGCACTAAC 1080
humanTAS1R1     ACAAGAAGGCCCCTAGGCCTTGCCACAAGGG----------CTCCTGGTGCAGCAGCAAT 1083
catTas1r1       ATAAGGGGGCCCCTGGGCCTTGCTCCAGGAC----------CTCCGAGTGCAGCAGCAAC 1083
mouseTas1r3     CTGACCCAGCATTCTGTGCCTCACTGAATGCGGA---GTTGGATCTGGAGGAACATGTGA 1093
ratTas1r3       CTGACCCAACATTCTGTGCCTCCCTGAAAGCTGA---GTTGGATCTGGAGGAGCGCGTGA 1093
catTas1r3       CTGACCCTGCCTTCTGCGCCTCGCTGGACGCTGAACAGCCAGGCCTGGAGGAGCACGTGG 1105
humanTAS1R3     CCGACCCGGCCTTCTGCTCTGCCCTGGGCGAGAGGGAGCAGGGTCTGGAGGAGGACGTGG 1096
                             *

mouseTas1r2     ---GACTGTGACGCC--TGCATGAACATCACCGAGTCCTTTAACAACGTTCTCATGCTTT 1150
ratTas1r2       ---GACTGTGACGCC--TGCTTGAACACCACCAAGTCCTTCAACAACATCCTTATACTTT 1150
humanTAS1R2     ---GAGTGCGACAAC--TGCCTGAACGCCACCTTGTCCTTCAACACCATTCTCAGGCTCT 1138
catTas1r2       ---GGAGACCACTGCCCTGCTCTAGCGTCCCCCTCTCTGGCCGGGTCCTGGGCAAACTGG 1135
mouseTas1r1     C--AGCTGTGCAGGGAGTGTCACGCTTTCACGACATGGAACATGCCCGAGCTTGGAGCCT 1144
ratTas1r1       C--AGCTGTGCCGGGAGTGCCACACGTTCACGACTCGTAACATGCCCACGCTTGGAGCCT 1138
humanTAS1R1     C--AGCTCTGCAGAGAATGCCAAGCTTTCATGGCACACACGATGCCCAAGCTCAAAGCCT 1141
catTas1r1       C--AGCTCTGTAGAGAGTGTCGGGCTTTCACGGCAGAGCAGATGCCCACGCTCGGGGCAT 1141
mouseTas1r3     TGGGGCAACGCTGTCCACGGTGTGACGACATCATGCTGCAGAACCTATCATCTGGGCTGT 1153
ratTas1r3       TGGGGCCACGCTGTTCACAATGTGACTACATCATGCTACAGAACCTGTCATCTGGGCTGA 1153
catTas1r3       TGGGGCCACGCTGCCCCCAATGTGACCACGTCACGCTAGAGAACCTATCTGCGGGGCTG- 1164
humanTAS1R3     TGGGCCAGCGCTGCCCGCAGTGTGACTGCATCACGCTGCAGAACGTGAGCGCAGGGCTAA 1156
                                          *
```

Figure 1E

```
                                                                Stop codon in cat T1R2 ♥
mouseTas1r2     CG----------------------GGGGAGCGTGTGGTCTACAGTGTGTACTCGGCCGTCT 1189
ratTas1r2       CG----------------------GGGGAGCGCGTGGTCTACAGCGTGTACTCGGCAGTTT 1189
humanTAS1R2     CT----------------------GGGGAGCGTGTCGTCTACAGCGTGTACTCTGCGGTCT 1177
catTas1r2       CG----------------------GGAGAGGCCAGGGGACGTACCCTGTCCCCAGACACAT 1174
mouseTas1r1     TC----------------------TCCATGAGCGCTGCCTACAATGTGTATGAGGCTGTGT 1183
ratTas1r1       TC----------------------TCCATGAGTGCCGCCTACAGAGTGTATGAGGCTGTGT 1177
humanTAS1R1     TC----------------------TCCATGAGTTCTGCCTACAACGCATACCGGGCTGTGT 1180
catTas1r1       TC----------------------TCCATGAGCTCTGCTTATAACGCCTACCGGGCAGTCT 1180
mouseTas1r3     TGCAGAACCTATCAGCTGGGCAATTGCACCACCAAATATTTGCAACCTATGCAGCTGTGT 1213
ratTas1r3       TGCAGAACCTATCAGCTGGGCAGTTGCACCACCAAATATTTGCAACCTATGCAGCTGTGT 1213
catTas1r3       ----------------------CTGCACCACCAGACCTTCGCTGCCTACGCGGCTGTGT 1201
humanTAS1R3     ------------------------ATCACCACCAGACGTTCTCTGTCTACGCAGCTGTGT 1192
                                                                *     *     *
                ♥♥
mouseTas1r2     ACGCGGTAGCCCACACCCTCCACAGACTCCTCCACTGCAACCAGGTCCGCTGCACCA--- 1246
ratTas1r2       ACGCGGTGGCCCATGCCCTCCACAGACTCCTCGGCTGTAACCGGGTCCGCTGCACCA--- 1246
humanTAS1R2     ATGCTGTGGCCCATGCCCTGCACAGCCTCCTCGGCTGTGACAAAAGCACCTGCACCA--- 1234
catTas1r2       AA---------------------------------------------------------- 1176
mouseTas1r1     ATGCTGTGGCCCACGGCCTCCACCAGCTCCTGGGATGTACCTCTGGGACCTGTGCCA--- 1240
ratTas1r1       ACGCTGTGGCCCACGGCCTCCACCAGCTCCTGGGATGTACTTCTGAGATCTGTTCCA--- 1234
humanTAS1R1     ATGCGGTGGCCCATGGCCTCCACCAGCTCCTGGGCTGTGCCTCTGGAGCTTGTTCCA--- 1237
catTas1r1       ACGCAGTGGCCCATGGCCTCCACCAGCTCCTGGGCTGTGCCTCTGGAGCCTGTTCCA--- 1237
mouseTas1r3     ACAGTGTGGCTCAAGCCCTTCACAACACCCTACAGTGCAATGTCTCACATTGCCACGTAT 1273
ratTas1r3       ACAGTGTGGCTCAGGCCCTTCACAACACCCTGCAGTGCAATGTCTCACATTGCCACACAT 1273
catTas1r3       ATGGCGTGGCCCAAGCCCTTCACAACACACTGCGCTGCAATGCCTCGGGCTGCCCCAGGC 1261
humanTAS1R3     ATAGCGTGGCCCAGGCCCTGCACAACACTCTTCAGTGCAACGCCTCAGGCTGCCCCGCGC 1252
                *

mouseTas1r2     AGCAAATCGTCTATCCATGGCAGCTACTCAGGGAGATCTGGCATGTCAACTTCACGCTCC 1306
ratTas1r2       AGCAAAAGGTCTACCCGTGGCAGCTACTCAGGGAGATCTGGCACGTCAACTTCACGCTCC 1306
humanTAS1R2     AGAGGGTGGTCTACCCCTGGCAGCTGCTTGAGGAGATCTGGAAGGTCAACTTCACTCTCC 1294
catTas1r2       ---------------------------------------------------------- 
mouseTas1r1     GAGGCCCAGTCTACCCCTGGCAGCTTCTTCAGCAGATCTACAAGGTGAATTTCCTTCTAC 1300
ratTas1r1       GAGGCCCAGTCTACCCCTGGCAGCTTCTTCAGCAGATCTACAAGGTGAATTTTCTTCTAC 1294
humanTAS1R1     GGGGCCGAGTCTACCCCTGGCAGCTTTTGGAGCAGATCCACAAGGTGCATTTCCTTCTAC 1297
catTas1r1       GGGACCGAGTCTACCCCTGGCAGCTTCTGGAGCAGATCCGCAAGGTGAATTTCCTCCTAC 1297
mouseTas1r3     CAGAACATGTTCTACCCTGGCAGCTCCTGGAGAACATGTACAATATGAGTTTCCATGCTC 1333
ratTas1r3       CAGAGCCTGTTCAACCCTGGCAGCTCCTGGAGAACATGTACAATATGAGTTTCCGTGCTC 1333
catTas1r3       GGGAGCCTGTGCGGCCCTGGCAGCTCCTAGAGAACATGTACAACGTGAGCTTCCGTGCTC 1321
humanTAS1R3     AGGACCCCGTGAAGCCCTGGCAGCTCCTGGAGAACATGTACAACCTGACCTTCCACGTGG 1312

mouseTas1r2     TGGGCAACCAGCTCTTCTTCGACGAACAAGGGGACATGCCGATGCTCCTGGACATCATCC 1366
ratTas1r2       TGGGTAACCGGCTCTTCTTTGACCAACAAGGGGACATGCCGATGCTCTTGGACATCATCC 1366
humanTAS1R2     TGGACCACCAAATCTTCTTCGACCCGCAAGGGGACGTGGCTCTGCACTTGGAGATTGTCC 1354
catTas1r2       ---------------------------------------------------------- 
mouseTas1r1     ATAAGAAGACTGTAGCATTCGATGACAAGGGGGACCCTCTAGGTTATTATGACATCATCG 1360
ratTas1r1       ATGAGAATACTGTGGCATTTGATGACAACGGGGACACTCTAGGTTACTACGACATCATCG 1354
humanTAS1R1     ACAAGGACACTGTGGCGTTTAATGACAACAGAGATCCCCTCAGTAGCTATAACATAATTG 1357
catTas1r1       ACAAGGACACCGTGAGGTTTAATGACAACGGGGACCCTCTCAGTGGCTACGACATAATTG 1357
mouseTas1r3     GAGACTTGACACTACAGTTTGATGCTGAAGGGAATGTAGACATGGAATATGACCTGAAGA 1393
ratTas1r3       GAGACTTGACACTGCAGTTTGATGCCAAAGGGAGTGTAGACATGGAATATGACCTGAAGA 1393
catTas1r3       GCGGCCTGGCACTGCAGTTCGACGCCAGCGGGAACGTGAACGTGGATTACGACCTGAAAC 1381
humanTAS1R3     GCGGGCTGCCGCTGCGGTTCGACAGCAGCGGAAACGTGGACATGGAGTACGACCTGAAGC 1372

mouseTas1r2     AGTGGCAATGGGGCCTGAGCCAGAACCCCTTCCAAAGCATCGCCTCCTACTCCCCCACCG 1426
ratTas1r2       AGTGGCAGTGGGACCTGAGCCAGAATCCCTTCCAAAGCATCGCCTCCTATTCTCCCACCA 1426
humanTAS1R2     AGTGGCAATGGGACCGGAGCCAGAATCCCTTCCAGAGCGTCGCCTCCTACTACCCCCTGC 1414
catTas1r2       ---------------------------------------------------------- 
mouseTas1r1     CCTGGGACTGGAATGGACCTGAATGGACCTTTGAGGTCATTGGTTCTGCCTCACTGTCTC 1420
ratTas1r1       CCTGGGACTGGAATGGACCTGAATGGACCTTTGAGATCATTGGCTCTGCCTCACTGTCTC 1414
humanTAS1R1     CCTGGGACTGGAATGGACCCAAGTGGACCTTCACGGTCCTCGGTTCCTCCACATGGTCTC 1417
catTas1r1       CCTGGGACTGGAGTGGCCCCAAGTGGAACTTCAGGGTCATTGGCTCCTCCATGTGGCCTC 1417
mouseTas1r3     TGTGGGTGTGGCAGAGCCCTACACCTGTATTACATACTGTGGGCACCTTCAACGGCACCC 1453
ratTas1r3       TGTGGGTGTGGCAGAGCCCTACACCTGTACTACATACTGTAGGCACCTTCAACGGCACCC 1453
catTas1r3       TGTGGGTGTGGCAGGACCCGACGCCCGAGCTGCGCACCGTAGGCACCTTCAAGGGCCGCC 1441
humanTAS1R3     TGTGGGTGTGGCAGGGCTCAGTGCCCAGGCTCCACGACGTGGGCAGGTTCAACGGCAGCC 1432
```

Figure 1F

```
mouseTas1r2     AGACGAGGCTGACCTACATTAG---CAATGTGTCCTGGTACACCCCCAACAACACGGTCC 1483
ratTas1r2       GCAAGAGGCTAACCTACATTAA---CAATGTGTCCTGGTACACCCCCAACAACACGGTCC 1483
humanTAS1R2     AGCGACAGCTGAAGAACATCCA---AGACATCTCCTGGCACACCGTCAACAACACGATCC 1471
catTas1r2       ------------------------------------------------------------
mouseTas1r1     CAGTTCATCTAGACATAAATAAGACAAAAATCCAGTGGCACGGGAAGAACAATCAGGTGC 1480
ratTas1r1       CAGTTCATCTGGACATAAATAAGACAAAAATCCAGTGGCACGGGAAGAACAATCAGGTGC 1474
humanTAS1R1     CAGTTCAGCTAAACATAAATGAGACCAAAATCCAGTGGCACGGAAAGGACAACCAGGTGC 1477
catTas1r1       CAGTTCAGCTGGACATAAATAAAACCAAAATCCGGTGGCACGGGAAGGACAACCAGGTGC 1477
mouseTas1r3     ---TTCAGCTGCAGCAGTCTAA------AATGTACTGGC------CAGGCAACCAGGTGC 1498
ratTas1r3       ---TTCAGCTGCAGCACTCGAA------AATGTATTGGC------CAGGCAACCAGGTGC 1498
catTas1r3       ---TGGAGCTCTGGCGCTCTCA------GATGTGCTGGCACACGCCGGGGAAGCAGCAGC 1492
humanTAS1R3     ---TCAGGACAGAGCGCCTGAA------GATCCGCTGGCACACGTCTGACAACCAGAAGC 1483

mouseTas1r2     CCATATCCATGTGTTCTAAGAGTTGCCAGCCTGGGCAAATGAAAAAACCCATAGGCCTCC 1543
ratTas1r2       CTGTCTCCATGTGTTCCAAGAGCTGCCAGCCAGGGCAAATGAAAAAGTCTGTGGGCCTCC 1543
humanTAS1R2     CTATGTCCATGTGTTCCAAGAGGTGCCAGTCAGGGCAAAAGAAGAAGCCTGTGGGCATCC 1531
catTas1r2       ------------------------------------------------------------
mouseTas1r1     CTGTGTCAGTGTGTACCAGGGACTGTCTCGAAGGGCACCACAGGTTGGTCATGGGTTCCC 1540
ratTas1r1       CTGTGTCAGTGTGTACCACGGACTGTCTGGCAGGGCACCACAGGGTGGTTGTGGGTTCCC 1534
humanTAS1R1     CTAAGTCTGTGTGTTCCAGCGACTGTCTTGAAGGGCACCAGCGAGTGGTTACGGGTTTCC 1537
catTas1r1       CAAAGTCTGTGTGCTCCAGCGACTGCCTCGAAGGGCACCAGCGAGTGATTTCGGGTTTCT 1537
mouseTas1r3     CAGTCTCCCAGTGTTCCCGCCAGTGCAAAGATGGCCAGGTTCGCCGAGTAAAGGGCTTTC 1558
ratTas1r3       CAGTCTCCCAGTGCTCCCGGCAGTGCAAAGATGGCCAGGTGCGCAGAGTAAAGGGCTTTC 1558
catTas1r3       CCGTGTCCCAGTGCTCCCGGCAGTGCAAGGAAGGCCAGGTGCGCCGCGTGAAGGGCTTCC 1552
humanTAS1R3     CCGTGTCCCGGTGCTCGCGGCAGTGCCAGGAGGGCCAGGTGCGCCGGGTCAAGGGGTTCC 1543

mouseTas1r2     ACCCGTGCTGCTTCGAGTGTGTGGACTGTCCGCCGGGCACCTACCTCAACCGATCAGTAG 1603
ratTas1r2       ACCCTTGTTGCTTCGAGTGCTTGGATTGTATGCCAGGCACCTACCTCAACCGCTCAGCAG 1603
humanTAS1R2     ACGTCTGCTGCTTCGAGTGCATCGACTGCCTTCCCGGCACCTTCCTCAACCACACTGAAG 1591
catTas1r2       ------------------------------------------------------------
mouseTas1r1     ACCACTGCTGCTTCGAGTGCATGCCCTGTGAAGCTGGGACATTTCTCAAC---ACGAGTG 1597
ratTas1r1       ACCACTGCTGCTTTGAGTGTGTGCCCTGCGAAGCTGGGACCTTTCTCAAC---ATGAGTG 1591
humanTAS1R1     ATCACTGCTGCTTTGAGTGTGTGCCCTGTGGGGCTGGGACCTTCCTCAAC---AAGAGTG 1594
catTas1r1       ACCACTGTTGCTTTGAGTGTGTGCCCTGTGAGGCCGGGAGCTTCCTCAAC---AAGAGCG 1594
mouseTas1r3     ATTCCTGCTGCTATGACTGCGTGGACTGCAAGGCGGGCAGCTACCGGAAG---CATCCAG 1615
ratTas1r3       ATTCCTGCTGCTATGACTGTGTGGACTGCAAGGCAGGGAGCTACCGGAAG---CATCCAG 1615
catTas1r3       ACTCTTGCTGTTACAACTGCGTGGACTGCAAGGCGGGCAGTTATCAGCGC---AACCCAG 1609
humanTAS1R3     ACTCCTGCTGCTACGACTGTGTGGACTGCGAGGCGGGCAGCTACCGGCAA---AACCCAG 1600

mouseTas1r2     ATGAGTTTAACTGTCTGTCCTGCCCGGGTTCCATGTGGTCTTACAAGAACAACATCGCTT 1663
ratTas1r2       ATGAGTTTAACTGTCTGTCCTGCCCGGGTTCCATGTGGTCCTACAAGAACGACATCACTT 1663
humanTAS1R2     ATGAATATGAATGCCAGGCCTGCCCGAATAACGAGTGGTCCTACCAGAGTGAGACCTCCT 1651
catTas1r2       ------------------------------------------------------------
mouseTas1r1     AGCTTCACACCTGCCAGCCTTGTGGAACAGAAGAATGGGCCCCTGAGGGGAGCTCAGCCT 1657
ratTas1r1       AGCTTCACATCTGCCAGCCTTGTGGAACAGAAGAATGGGCACCCAAGGAGAGCACTACTT 1651
humanTAS1R1     ACCTCTACAGATGCCAGCCTTGTGGGAAAGAAGAGTGGGCACCTGAGGGAAGCCAGACCT 1654
catTas1r1       ACCTCCACAGCTGCCAGCCTTGTGGGAAAGAAAAGTGGGCACCCGCGGGAAGTGAAACCT 1654
mouseTas1r3     ATGACTTCACCTGTACTCCATGTAACCAGGACCAGTGGTCCCCAGAGAAAAGCACAGCCT 1675
ratTas1r3       ATGACTTCACCTGTACTCCATGTGGCAAGGATCAGTGGTCCCCAGAAAAAAGCACAACCT 1675
catTas1r3       ATGACCTCCTCTGCACCCAGTGTGACCAGGACCAGTGGTCCCCAGACCGGAGCACACGCT 1669
humanTAS1R3     ACGACATCGCCTGCACCTTTTGTGGCCAGGATGAGTGGTCCCCGGAGCGAAGCACACGCT 1660

mouseTas1r2     GCTTCAAGCGGCGGCTGGCCTTCCTGGAGTGGCACGAAGTGCCCACTATCGTGGTGACCA 1723
ratTas1r2       GCTTCCAGCGGCGGCCTACCTTCCTGGAGTGGCACGAAGTGCCCACCATCGTGGTGGCCA 1723
humanTAS1R2     GCTTCAAGCGGCAGCTGGTCTTCCTGGAATGGCATGAGGCACCCACCATCGCTGTGGCCC 1711
catTas1r2       ------------------------------------------------------------
mouseTas1r1     GCTTCTCACGCACCGTGGAGTTCTTGGGGTGGCATGAACCCATCTCTTTGGTGCTATTAG 1717
ratTas1r1       GCTTCCCACGCACGGTGGAGTTCTTGGCTTGGCATGAACCCATCTCTTTGGTGCTAATAG 1711
humanTAS1R1     GCTTCCCGCGCACTGTGGTGTTTTTGGCTTTGCGTGAGCACACCTCTTGGGTGCTGCTGG 1714
catTas1r1       GCTTTCCACGCACCGTGGTGTTTTTGACTTGGCACGAGACCATCTCTTGGGTGCTGCTGG 1714
mouseTas1r3     GCTTACCTCGCAGGCCCAAGTTTCTGGCTTGGGGGGAGCCAGTTGTGCTGTCACTCCTCC 1735
ratTas1r3       GCTTACCTCGCAGGCCCAAGTTTCTGGCTTGGGGGGAGCCAGCTGTGCTGTCACTTCTCC 1735
catTas1r3       GCTTCGCCCGCAAGCCCATGTTCCTGGCATGGGGGGAGCCAGCTGTGCTGCTACTGCTCG 1729
humanTAS1R3     GCTTCCGCCGCAGGTCTCGGTTCCTGGCATGGGGCGAGCCGGCTGTGCTGCTGCTGCTCC 1720
```

Figure 1G

```
mouseTas1r2     TCCTGGCCGCCCTGGGCTTCATCAGTACGCTGGCCATTCTGCTCATCTTCTGGAGACATT 1783
ratTas1r2       TACTGGCTGCCCTGGGCTTCTTCAGTACACTGGCCATTCTTTTCATCTTCTGGAGACATT 1783
humanTAS1R2     TGCTGGCCGCCCTGGGCTTCCTCAGCACCCTGGCCATCCTGGTGATATTCTGGAGGCACT 1771
catTas1r2       ------------------------------------------------------------
mouseTas1r1     CAGCTAACACGCTATTGCTGCTGCTGCTGATTGGGACTGCTGGCCTGTTTGCCTGGCGTC 1777
ratTas1r1       CAGCTAACACGCTATTGCTGCTGCTGCTGGTTGGGACTGCTGGCCTGTTTGCCTGGCATT 1771
humanTAS1R1     CAGCTAACACGCTGCTGCTGCTGCTGCTGCTTGGGACTGCTGGCCTGTTTGCCTGGCACC 1774
catTas1r1       CAGCTAATACGTTGCTGCTGCTGCTGGTGACTGGGACTGCTGGCCTGTTTGCCTGGCACT 1774
mouseTas1r3     TGCTGCTTTGCCTGGTGCTGGGTCTAGCACTGGCTGCTCTGGGGCTCTCTGTCCACCACT 1795
ratTas1r3       TGCTGCTTTGCCTGGTGCTGGGCCTGACACTGGCTGCCCTGGGGCTCTTTGTCCACTACT 1795
catTas1r3       CGCTGCTGGCTCTGGCGCTGGGCCTGGCGCTGGCAGCCCTGGGGCTCTTCCTCTGGCACT 1789
humanTAS1R3     TGCTGCTGAGCCTGGCGCTGGGCCTTGTGCTGGCTGCTTTGGGGCTGTTCGTTCACCATC 1780

mouseTas1r2     TCCAGACGCCCATGGTGCGCTCGGCGGGCGGCCCCATGTGCTTCCTGATGCTGGTGCCCC 1843
ratTas1r2       TCCAGACACCCATGGTGCGCTCGGCCGGTGGCCCCATGTGCTTCCTGATGCTCGTGCCCC 1843
humanTAS1R2     TCCAGACACCCATAGTTCGCTCGGCTGGGGGCCCCCATGTGCTTCCTGATGCTGACACTGC 1831
catTas1r2       ------------------------------------------------------------
mouseTas1r1     TTCACACGCCTGTTGTGAGGTCAGCTGGGGGTAGGCTGTGCTTCCTCATGCTGGGTTCCT 1837
ratTas1r1       TTCACACACCTGTAGTGAGGTCAGCTGGGGGTAGGCTGTGCTTCCTCATGCTGGGTTCCC 1831
humanTAS1R1     TAGACACCCCTGTGGTGAGGTCAGCAGGGGGCCGCCTGTGCTTTCTTATGCTGGGCTCCC 1834
catTas1r1       TAGACACCCCTGTGGTGAAGTCCGCTGGGGGCCGACTGTGCTTCTTCATGCTAGGCTCCC 1834
mouseTas1r3     GGGACAGCCCTCTTGTCCAGGCCTCAGGTGGCTCACAGTTCTGCTTTGGCCTGATCTGCC 1855
ratTas1r3       GGGACAGCCCTCTTGTTCAGGCCTCAGGTGGGTCACTGTTCTGCTTTGGCCTGATCTGCC 1855
catTas1r3       CGGACAGCCCGCTGGTTCAGGCCTCAGGTGGGCCACGGGCCTGCTTTGGCCTGGCTTGCC 1849
humanTAS1R3     GGGACAGCCCACTGGTTCAGGCCTCGGGGGGGCCCCTGGCCTGCTTTGGCCTGGTGTGCC 1840

mouseTas1r2     TGCTGCTGGCGTTCGGGATGGTCCCCGTGTATGTGGGCCCCCCCACGGTCTTCTCCTGTT 1903
ratTas1r2       TGCTGCTGGCGTTTGGGATGGTGCCCGTGTATGTGGGGCCCCCCACGGTCTTCTCATGCT 1903
humanTAS1R2     TGCTGGTGGCATACATGGTGGTCCCGGTGTACGTGGGGCCGCCCAAGGTCTCCACCTGCC 1891
catTas1r2       ------------------------------------------------------------
mouseTas1r1     TGGTAGCTGGGAGTTGCAGCCTCTACAGCTTCTTCGGGAAGCCCACGGTGCCCGCGTGCT 1897
ratTas1r1       TGGTGGCCGGAAGTTGCAGCTTCTATAGCTTCTTCGGGGAGCCCACGGTGCCCGCGTGCT 1891
humanTAS1R1     TGGCAGCAGGTAGTGGCAGCCTCTATGGCTTCTTTGGGGAACCCACAAGGCCTGCGTGCT 1894
catTas1r1       TGGCAGGGGGCAGCTGTGGGCTCTACGGCTTTTTTGGGGAGCCCACGCTGCCCACATGCT 1894
mouseTas1r3     TAGGCCTCTTCTGCCTCAGTGTCCTTCTGTTCCCAGGGCGGCCAAGCTCTGCCAGCTGCC 1915
ratTas1r3       TAGGCCTCTTCTGCCTCAGTGTCCTTCTGTTCCCAGGACGACCACGCTCTGCCAGCTGCC 1915
catTas1r3       TGGGCCTGGTCTGCCTCAGTGTCCTCCTGTTCCCTGGCCAGCCAGGCCCTGCCAGCTGCC 1909
humanTAS1R3     TGGGCCTGGTCTGCCTCAGCGTCCTCCTGTTCCCTGGCCAGCCCAGCCCTGCCCGATGCC 1900

mouseTas1r2     TCTGCCGCCAGGCTTTCTTCACCGTTTGCTTCTCCGTCTGCCTCTCCTGCATCACGGTGC 1963
ratTas1r2       TCTGCCGACAGGCTTTCTTCACCGTCTGCTTCTCCATCTGCCTATCCTGCATCACCGTGC 1963
humanTAS1R2     TCTGCCGCCAGGCCCTCTTTCCCCTCTGCTTCACAATTTGCATCTCCTGTATCGCCGTGC 1951
catTas1r2       ------------------------------------------------------------
mouseTas1r1     TGCTGCGTCAGCCCCTCTTTTCTCTCGGGTTTGCCATTTTCCTCTCCTGTCTGACAATCC 1957
ratTas1r1       TGCTGCGTCAGCCCCTCTTTTCTCTCGGGTTTGCCATCTTCCTCTCCTGCCTGACAATCC 1951
humanTAS1R1     TGCTACGCCAGGCCCTCTTTGCCCTTGGTTTCACCATCTTCCTGTCCTGCCTGACAGTTC 1954
catTas1r1       TGTTGCGCCAAAGCCTCCTTGCCCTGGGTTTTGCCATCTTCCTGTCCTGCCTGACCATCC 1954
mouseTas1r3     TTGCACAACAACCAATGGCTCACCTCCCTCTCACAGGCTGCCTGAGCACACTCTTCCTGC 1975
ratTas1r3       TTGCCCAACAACCAATGGCTCACCTCCCTCTCACAGGCTGCCTGAGCACACTCTTCCTGC 1975
catTas1r3       TGGCCCAGCAGCCACTGTTCCACCTCCCACTCACTGGCTGCCTGAGCACGTTTTTCCTGC 1969
humanTAS1R3     TGGCCCAGCAGCCCTTGTCCCACCTCCCGCTCACGGGCTGCCTGAGCACACTCTTCCTGC 1960

mouseTas1r2     GCTCCTTCCAGATTGTGTGCGTCTTCAAGATGGCCAGACGCCTGCCAAGCGCCTACGGTT 2023
ratTas1r2       GCTCCTTCCAGATCGTGTGTGTCTTCAAGATGGCCAGACGCCTGCCAAGTGCCTACAGTT 2023
humanTAS1R2     GTTCTTTCCAGATCGTCTGCGCCTTCAAGATGGCCAGCCGCTTCCCACGCGCCTACAGCT 2011
catTas1r2       ------------------------------------------------------------
mouseTas1r1     GCTCCTTCCAACTGGTCATCATCTTCAAGTTTTCTACCAAGGTACCCACATTCTACCACA 2017
ratTas1r1       GCTCCTTCCAACTGGTCATCATCTTCAAGTTTTCTACCAAGGTGCCCACATTCTACCGTA 2011
humanTAS1R1     GCTCATTCCAACTAATCATCATCTTCAAGTTTTCCACCAAGGTACCTACATTCTACCACG 2014
catTas1r1       GCTCCTTCCAACTGGTCTTCATCTTCAAGTTTTCTGCCAAGGTACCCACCTTCTACCGTG 2014
mouseTas1r3     AAGCAGCTGAGACCTTTGTGGAGTCTGAGCTGCCACTGAGCTGGGCAAACTGGCTATGCA 2035
ratTas1r3       AAGCAGCCGAGATCTTTGTGGAGTCTGAGCTGCCACTGAGTTGGGCAAACTGGCTCTGCA 2035
catTas1r3       AAGCGGCCGAGATATTTGTGGGGTCGGAGCTGCCACCAAGCTGGGCTGAGAAGATGCGTG 2029
humanTAS1R3     AGGCGGCCGAGATCTTCGTGGAGTCAGAACTGCCTCTGAGCTGGGCAGACCGGCTGAGTG 2020
```

Figure 1H

```
mouseTas1r2     TCTGGATGCGTTACCACGGGCCCTACGTCTTTGTGGCCTTCATCACGGCCGTCAAGGTGG 2083
ratTas1r2       TTTGGATGCGTTACCACGGGCCCTATGTCTTCGTGGCCTTCATCACGGCCATCAAGGTGG 2083
humanTAS1R2     ACTGGGTCCGCTACCAGGGGCCCTACGTCTCTATGGCATTTATCACGGTACTCAAAATGG 2071
catTas1r2       ------------------------------------------------------------
mouseTas1r1     CTTGGGCCCAAAACCATGGTGCCGGAATATTCGTCATTGTCAGCTCCACGGTCCATTTGT 2077
ratTas1r1       CCTGGGCCCAAAACCATGGTGCAGGTCTATTCGTCATTGTCAGCTCCACGGTCCATTTGC 2071
humanTAS1R1     CCTGGGTCCAAAACCACGGTGCTGGCCTGTTTGTGATGATCAGCTCAGCGGCCCAGCTGC 2074
catTas1r1       CCTGGGTCCAAAACCACGGTCCTGGCCTATTTGTGGTGATCAGCTCAATGGCCCAGCTGC 2074
mouseTas1r3     GCTACCTTCGGGGACTCTGGGCCTGGCTAGTGGTACTGTTGGCCACTTTTGTGGAGGCAG 2095
ratTas1r3       GCTACCTTCGGGGCCCCTGGGCTTGGCTGGTGGTACTGCTGGCCACTCTTGTGGAGGCTG 2095
catTas1r3       GCCGCCTGCGGGGGCCCTGGGCCTGGCTGGTGGTGCTGCTTGCTATGCTGGCAGAAGCCG 2089
humanTAS1R3     GCTGCCTGCGGGGGCCCTGGGCCTGGCTGGTGGTGCTGCTGGCCATGCTGGTGGAGGTCG 2080

mouseTas1r2     CCCTGGTGGCAGGCAACATGCTGGCCACCACCATCAACCCCATTGGCCGGACCGACCCCG 2143
ratTas1r2       CCCTGGTGGTGGGCAACATGCTGGCCACCACCATCAACCCCATTGGCCGGACCGACCCGG 2143
humanTAS1R2     TCATTGTGGTAATTGGCATGCTGGCCACGGGCCTCAGTCCCACCACCCGTACTGACCCCG 2131
catTas1r2       ------------------------------------------------------------
mouseTas1r1     TCCTCTGTCTCACGTGGCTTGCAATGTGGACCCCACGGCCCACCA---GGGAGTACCAGC 2134
ratTas1r1       TCATCTGTCTCACATGGCTTGTAATGTGGACCCCACGACCCACCA---GGGAATACCAGC 2128
humanTAS1R1     TTATCTGTCTAACTTGGCTGGTGGTGTGGACCCCACTGCCTGCTA---GGGAATACCAGC 2131
catTas1r1       TCATCTGTCTAACTTGGCTGGCGGTGTGGACCCCACTGCCCACCA---GGGAGTACCAGC 2131
mouseTas1r3     CACTATGTGCCTGGTATTTGATCGCTTTCCCACCAGAGGTGGTGA--CAGACTGGTCAGT 2153
ratTas1r3       CACTATGTGCCTGGTACTTGATGGCTTTCCCTCCAGAGGTGGTGA--CAGATTGGCAGGT 2153
catTas1r3       CATTGTGTGCCTGGTACCTGGTAGCCTTCCCGCCAGAGGTGGTGA--CGGACTGGCGGGT 2147
humanTAS1R3     CACTGTGCACCTGGTACCTGGTGGCCTTCCCGCCGGAGGTGGTGA--CGGACTGGCACAT 2138

mouseTas1r2     ATGACCCCAATATCATAATCCTCTCCTGCCACCCTAACTACCGCAACGGGCTACTCTTCA 2203
ratTas1r2       ATGACCCCAACATCATGATCCTCTCGTGCCACCCTAACTACCGCAACGGGCTACTGTTCA 2203
humanTAS1R2     ATGACCCCAAGATCACAATTGTCTCCTGTAACCCCAACTACCGCAACAGCCTGCTGTTCA 2191
catTas1r2       ------------------------------------------------------------
mouseTas1r1     GCTTCCCCCATCTGGTGATTCTTGAGTGCACAGAGGTCAACTCTGTGGGCTTCCTGGTGG 2194
ratTas1r1       GCTTCCCCCATCTGGTGATTCTCGAGTGCACAGAGGTCAACTCTGTAGGCTTCCTGTTGG 2188
humanTAS1R1     GCTTCCCCCATCTGGTGATGCTTGAGTGCACAGAGACCAACTCCCTGGGCTTCATACTGG 2191
catTas1r1       GCTTCCCTCAGCTGGTGGTGCTTGATTGCACAGAGGCCAACTCACCGGGCTTCATGTTGG 2191
mouseTas1r3     GCTGCCCACAGA-GGTACTGGAGCACTGCCACGTGCGTTCCTGGGTCAGCCTGGGCTTGG 2212
ratTas1r3       GCTGCCCACGGA-GGTACTGGAACACTGCCGCATGCGTTCCTGGGTCAGCCTGGGCTTGG 2212
catTas1r3       ACTGCCCACAGA-GGCGCTGGTGCACTGCCACGTGCACTCCTGGATCAGCTTCGGCCTGG 2206
humanTAS1R3     GCTGCCCACGGA-GGCGCTGGTGCACTGCCGCACACGCTCCTGGGTCAGCTTCGGCCTAG 2197

mouseTas1r2     ACACCAGCATGGACTTGCTGCTGTCCGTGCTGGGTTTCAGCTTCGCGTACGTGGGCAAGG 2263
ratTas1r2       ACACCAGCATGGACTTGCTGCTGTCTGTGCTGGGTTTCAGCTTCGCTTACATGGGCAAGG 2263
humanTAS1R2     ACACCAGCCTGGACCTGCTGCTCTCAGTGGTGGGTTTCAGCTTCGCCTACATGGGCAAAG 2251
catTas1r2       ------------------------------------------------------------
mouseTas1r1     CTTTCGCACACAACATCCTCCTCTCCATCAGCACCTTTGTCTGCAGCTACCTGGGTAAGG 2254
ratTas1r1       CTTTCACCCACAACATTCTCCTCTCCATCAGTACCTTCGTCTGCAGCTACCTGGGTAAGG 2248
humanTAS1R1     CCTTCCTCTACAATGGCCTCCTCTCCATCAGTGCCTTTGCCTGCAGCTACCTGGGTAAGG 2251
catTas1r1       CTTTCGCCTACAATGGCCTCCTGTCCGTCAGCGCCTTTGCCTGCAGCTACCTGGGCAAGG 2251
mouseTas1r3     TGCACATCACCAATGCAATGTTAGCTTTCCTCTGCTTTCTGGGCACTTTCCTGGTACAGA 2272
ratTas1r3       TGCACATCACCAATGCAGTGTTAGCTTTCCTCTGCTTTCTGGGCACTTTCCTGGTACAGA 2272
catTas1r3       TGCATGCCACTAACGCCATGCTGGCCTTCCTCTGCTTCCTGGGCACTTTCCTGGTGCAGA 2266
humanTAS1R3     CGCACGCCACCAATGCCACGCTGGCCTTTCTCTGCTTCCTGGGCACTTTCCTGGTGCGGA 2257

mouseTas1r2     AACTGCCCACCAACTACAACGAAGCCAAGTTCATCACCCTCAGCATGACCTTCTCCTTCA 2323
ratTas1r2       AGCTGCCCACCAACTACAACGAAGCCAAGTTCATCACTCTCAGCATGACCTTCTCCTTCA 2323
humanTAS1R2     AGCTGCCCACCAACTACAACGAGGCCAAGTTCATCACCCTCAGCATGACCTTCTATTTCA 2311
catTas1r2       ------------------------------------------------------------
mouseTas1r1     AACTGCCGGAGAACTATAACGAAGCCAAATGTGTCACCTTCAGCCTGCTCCTCCACTTCG 2314
ratTas1r1       AACTGCCAGAGAACTATAATGAAGCCAAATGTGTCACCTTCAGCCTGCTCCTCAACTTCG 2308
humanTAS1R1     ACTTGCCAGAGAACTACAACGAGGCCAAATGTGTCACCTTCAGCCTGCTCTTCAACTTCG 2311
catTas1r1       ACCTGCCAGAGAACTACAACGAGGCCAAATGTGTCACTTTTAGTCTGCTGCTCAACTTCG 2311
mouseTas1r3     GCCAGCCTGGCCGCTACAACCGTGCCCGTGGTCTCACCTTCGCCATGCTAGCTTATTTCA 2332
ratTas1r3       GCCAGCCTGGTCGCTATAACCGTGCCCGTGGCCTCACCTTCGCCATGCTAGCTTATTTCA 2332
catTas1r3       GCCGGCCAGGCCGCTACAATGGTGCCCGCGGCCTCACCTTTGCCATGCTGGCCTACTTCA 2326
humanTAS1R3     GCCAGCCGGGCCGCTACAACCGTGCCCGTGGCCTCACCTTTGCCATGCTGGCCTACTTCA 2317
```

Figure 1I

```
mouseTas1r2     CCTCCTCCATCTCCCTCTGCACGTTCATGTCTGTCCACGATGGCGTGCTGGTCACCATCA 2383
ratTas1r2       CCTCCTCCATCTCCCTCTGCACCTTCATGTCTGTGCACGACGGCGTGCTGGTCACCATCA 2383
humanTAS1R2     CCTCATCCGTCTCCCTCTGCACCTTCATGTCTGCCTACAGCGGGGTGCTGGTCACCATCG 2371
catTas1r2       ------------------------------------------------------------
mouseTas1r1     TATCCTGGATCGCTTTCTTCACCATGTCCAGCATTTACCAGGGCAGCTACCTACCCGCGG 2374
ratTas1r1       TATCCTGGATCGCCTTCTTCACCATGGCCAGCATTTACCAGGGCAGCTACCTGCCTGCGG 2368
humanTAS1R1     TGTCCTGGATCGCCTTCTTCACCACGGCCAGCGTCTACGACGGCAAGTACCTGCCTGCGG 2371
catTas1r1       TGTCCTGGATTGCCTTCTTCACCACGGCCAGCGTCTACCAGGGCAAGTACTTGCCCGCGG 2371
mouseTas1r3     TCACCTGGGTCTCTTTTGTGCCCCTCCTGGCCAATGTGCAGGTGGCCTACCAGCCAGCTG 2392
ratTas1r3       TCATCTGGGTCTCTTTTGTGCCCCTCCTGGCTAATGTGCAGGTGGCCTACCAGCCAGCTG 2392
catTas1r3       TCACCTGGATCTCCTTTGTGCCCCTCTTTGCCAATGTGCACGTGGCCTACCAGCCTGCCG 2386
humanTAS1R3     TCACCTGGGTCTCCTTTGTGCCCCTCCTGGCCAATGTGCAGGTGGTCCTCAGGCCCGCCG 2377

mouseTas1r2     TGGATCTCCTGGTCACTGTGCTCAACTTTCTGGCCATCGGCTTGGGGTACTTTGGCCCCA 2443
ratTas1r2       TGGACCTCCTGGTCACTGTGCTCAACTTCCTGGCCATCGGCTTGGGATACTTTGGCCCCA 2443
humanTAS1R2     TGGACCTCTTGGTCACTGTGCTCAACCTCCTGGCCATCAGCCTGGGCTACTTCGGCCCCA 2431
catTas1r2       ------------------------------------------------------------
mouseTas1r1     TCAATGTGCTGGCAGGGCTGGCCACTCTGAGTGGCGGCTTCAGCGGCTATTTCCTCCCTA 2434
ratTas1r1       TCAATGTGCTGGCAGGGCTGACCACACTGAGCGGCGGCTTCAGCGGTTACTTCCTCCCCA 2428
humanTAS1R1     CCAACATGATGGCTGGGCTGAGCAGCCTGAGCAGCGGCTTCGGTGGGTATTTTCTGCCTA 2431
catTas1r1       TCAACGTGCTGGCGGCGCTGAGCAGCCTGAGTGGCGGCTTCAGCGGTTATTTCCTCCCCA 2431
mouseTas1r3     TGCAGATGGGTGCTATCCTAGTCTGTGCCCTGGGCATCCTGGTCACCTTCCACCTGCCCA 2452
ratTas1r3       TGCAGATGGGTGCTATCTTATTCTGTGCCCTGGGCATCCTGGCCACCTTCCACCTGCCCA 2452
catTas1r3       TGCAGATGGGCACCATCCTCCTCTGTGCCCTGGGTATCCTAGCCACCTTCCACCTGCCCA 2446
humanTAS1R3     TGCAGATGGGCGCCCTCCTGCTCTGTGTCCTGGGCATCCTGGCTGCCTTCCACCTGCCCA 2437

mouseTas1r2     AGTGTTACATGATCCTTTTCTACCCGGAGCGCAACACTTCAGCTTATTTCAATAGCATGA 2503
ratTas1r2       AGTGTTACATGATCCTTTTCTACCCGGAGCGCAACACCTCAGCCTATTTCAATAGCATGA 2503
humanTAS1R2     AGTGCTACATGATCCTCTTCTACCCGGAGCGCAACACGCCCGCCTACTTCAACAGCATGA 2491
catTas1r2       ------------------------------------------------------------
mouseTas1r1     AATGCTACGTGATTCTCTGCCGTCCAGAACTCAACAACACAGAACACTTTCAGGCCTCCA 2494
ratTas1r1       AGTGCTATGTGATTCTCTGCCGTCCAGAACTCAACAATACAGAACACTTTCAGGCCTCCA 2488
humanTAS1R1     AGTGCTACGTGATCCTCTGCCGCCCAGACCTCAACAGCACAGAGCACTTCCAGGCCTCCA 2491
catTas1r1       AGTGCTACGTGATCCTGTGCCGCCCAAAATTTAACAGCACACAGCACTTCCAGGCCTCCA 2491
mouseTas1r3     AGTGCTATGTGCTTCTTTGGCTGCCAAAGCTCAACACCCAGGAGTTCTTCCTGGGAAGGA 2512
ratTas1r3       AATGCTATGTACTTCTGTGGCTGCCAGAGCTCAACACCCAGGAGTTCTTCCTGGGAAGGA 2512
catTas1r3       AGTGCTACCTGCTGCTGCAGCGGCCGGAGCTCAACACCCCTGAGTTCTTCCTGGAAGACA 2506
humanTAS1R3     GGTGTTACCTGCTCATGCGGCAGCCAGGGCTCAACACCCCCGAGTTCTTCCTGGGAGGGG 2497

mouseTas1r2     TTCAGGGCTACACGATGAGGAAGAGCTAG---------------------------------- 2532
ratTas1r2       TCCAGGGCTACACCATGAGGAAGAGC------------------------------------ 2529
humanTAS1R2     TCCAGGGCTACACCATGAGGAGGGACTAG--------------------------------- 2520
catTas1r2       ------------------------------------------------------------
mouseTas1r1     TCCAGGACTACACGAGGCGCTGCGGCACTACCTGA--------------------------- 2529
ratTas1r1       TCCAGGACTACACGAGGCGCTGCGGCACTACC------------------------------ 2520
humanTAS1R1     TTCAGGACTACACGAGGCGCTGCGGCTCCACCTGA--------------------------- 2526
catTas1r1       TCCAGGAGTACACGAGGCGCTGCGGCTCCACCTGA--------------------------- 2526
mouseTas1r3     ATGCCAAGAAAGCAGCAGATGAGAAC-AGTGGCGGTGGTGAGGCAGCTCAGGGACACAAT 2571
ratTas1r3       GCCCCAAGGAAGCATCAGATGGGAAT-AGTGGTAGTAGTGAGGCAACTCGGGGACACAGT 2571
catTas1r3       ATGCCA---GAGCACAGGGCAGCAGTTGGGGGCAGGGGAGGGGAGAATCGGGGCAAAAAC 2563
humanTAS1R3     GCCCTGGGGATGCCCAAGGCCAGAAT----GACGGGAACACAGGAAATCAGGGGAAACAT 2553

mouseTas1r2     ------------------------------------
ratTas1r2       ------------------------------------
humanTAS1R2     ------------------------------------
catTas1r2       ------------------------------------
mouseTas1r1     ------------------------------------
ratTas1r1       ------------------------------------
humanTAS1R1     ------------------------------------
catTas1r1       ------------------------------------
mouseTas1r3     GAATGA------------------------------ 2577
ratTas1r3       GAATGA------------------------------ 2577
catTas1r3       AAGTGACACCCGATCCAGTGACCTCACCGCAGTGA 2598
humanTAS1R3     GAGTGA------------------------------ 2559
```

Figure 2A **CLUSTAL W (1.82) multiple amino acid sequence alignment of T1Rs:**

```
mouseT1R2       MGPQARTLHLLFLLLHALPKPVML---VGNSDFHLAGDYLLGGLFTLHANVKSVSHLSYL 57
ratT1R2         MGPQARTLCLLSLLLHVLPKPGKL---VENSDFHLAGDYLLGGLFTLHANVKSISHLSYL 57
humanT1R2       MGPRAKTICSLFFLLWVLAEP------AENSDFYLPGDYLLGGLFSLHANMKGIVHLNFL 54
catT1R2         MGPRAREVCCFIILPRLLAEP------AENSDFYLAGDYFLGGLFTLHANVKGIVHLNLL 54
mouseT1R1       MLFWAAHLLLSLQLAVAYCWAFSCQRTESSPGFSLPGDFLLAGLFSLHADCLQVRHRPLV 60
ratT1R1         MLFWAAHLLLSLQL--VYCWAFSCQRTESSPGFSLPGDFLLAGLFSLHGDCLQVRHRPLV 58
humanT1R1       MLLCTARLVG-LQLLISCCWAFACHSTESSPDFTLPGDYLLAGLFPLHSGCLQVRHRPEV 59
catT1R1         MSLPAAHLVG-LQLSLSCCWALSCHSTETSADFSLPGDYLLAGLFPLHSDCPGVRHRPTV 59
mouseT1R3       MPALAIMGLS----LAAFLELGMGASLCLSQQFKAQGDYILGGLFPLG-STEEATLNQRT 55
ratT1R3         MPGLAILGLS----LAAFLELGMGSSLCLSQQFKAQGDYILGGLFPLG-TTEEATLNQRT 55
humanT1R3       MLGPAVLGLS----LWALLHPGTGAPLCLSQQLRMKGDYVLGGLFPLG-EAEEAGLRSRT 55
catT1R3         MPGLALLGLTALLGLTALLDHGEGATSCLSQQLRMQGDYVLGGLFPLG-SAEGTGLGDGL 59
                                          .  :   **:.*.***.*

mouseT1R2       QVPKCNEYNMKVLGYNLMQAMRFAVEEINNCSSLLPGVLLGYEMVDVCYL-SNNIQPGLY 116
ratT1R2         QVPKCNEFTMKVLGYNLMQAMRFAVEEINNCSSLLPGVLLGYEMVDVCYL-SNNIHPGLY 116
humanT1R2       QVPMCKEYEVKVIGYNLMQAMRFAVEEINNDSSLLPGVLLGYEIVDVCYI-SNNVQPVLY 113
catT1R2         QVPQCKEYEIKVLGYDLMQAMCFAGEEINSQSSLLPGVLLGYKMVDVSYI-SNNVQPVLH 113
mouseT1R1       TSCDR-SDSFNGHGYHLFQAMRFTVEEINNSTALLPNITLGYELYDVCSE-SSNVYATLR 118
ratT1R1         TSCDR-PDSFNGHGYHLFQAMRFTVEEINNSSALLPNITLGYELYDVCSE-SANVYATLR 116
humanT1R1       TLCDR-SCSFNEHGYHLFQAMRLGVEEINNSTALLPNITLGYQLYDVCSD-SANVYATLR 117
catT1R1         TLCDR-PDSFNGHGYHLFQAMRFGIEEINNSTALLPNVTLGYQLYDVCSE-SANVYATLN 117
mouseT1R3       QPNSIPCNRFSPLGLFLAMAMKMAVEEINNGSALLPGLRLGYDLFDTCSEPVVTMKSSLM 115
ratT1R3         QPNGILCTRFSPLGLFLAMAMKMAVEEINNGSALLPGLRLGYDLFDTCSEPVVTMKPSLM 115
humanT1R3       RPSSPVCTRFSSNGLLWALAMKMAVEEINNKSDLLPGLRLGYDLFDTCSEPVVAMKPSLM 115
catT1R3         QPNATVCTRFSSLGLLWALAVKMAVEEINNGSALLPGLHLGYDLFDTCSEPMVAMKPSLV 119
                         ..  *     *: :  ****. : ***.: ***.: *..      : . *

mouseT1R2       FLSQID-DFLPILKDYSQYRPQVVAVIGPDNSESAITVSNILSYFLVPQVTYSAITDKLR 175
ratT1R2         FLAQDD-DLLPILKDYSQYMPHVVAVIGPDNSESAITVSNILSHFLIPQITYSAISDKLR 175
humanT1R2       FLAHED-NLLPIQEDYSNYISRVVAVIGPDNSESVMTVANFLSLFLLPQITYSAISDELR 172
catT1R2         FPAKED-CSLPIQEDYSHCVPRVVAVIGPGNSESTVTVARFLSLFLLPQITYSAISDELR 172
mouseT1R1       VLAQQGTGHLEMQRDLRNHSSKVVALIGPDNTDHAVTTAALLSPFLMPLVSYEASSVILS 178
ratT1R1         VLALQGPRHIEIQKDLRNHSSKVVAFIGPDNTDHAVTTAALLGPFLMPLVSYEASSVVLS 176
humanT1R1       VLSLPGQHHIELQGDLLHYSPTVLAVIGPDSTNRAATTAALLSPFLVPMISYAASSETLS 177
catT1R1         VLSLLGTHHVEIRADPSHYSPAALAVIGPDTTNHAATTAALLSPFLVPLISYEASSVTLG 177
mouseT1R3       FLAKVGSQSIAAYCNYTQYQPRVLAVIGPHSSELALITGKFFSFFLMPQVSYSASMDRLS 175
ratT1R3         FMAKVGSQSIAAYCNYTQYQPRVLAVIGPHSSELALITGKFFSFFLMPQVSYSASMDRLS 175
humanT1R3       FLAKAGSRDIAAYCNYTQYQPRVLAVIGPHSSELAMVTGKFFSFFLMPQVSYGASMELLS 175
catT1R3         FMAKAGSCSIAAYCNYTQYQPRVLAVIGPHSSELALVTGKFFSFFLVPQVSYGASTDRLS 179
                . :  .   :    :  :  . .:*.*** .:: .  .. ::. **:* ::* *    *

mouseT1R2       DKRRFPAMLRTVPSATHHIEAMVQLMVHFQWNWIVVLVSDDDYGRENSHLLSQRLTNTGD 235
ratT1R2         DKRHFPSMLRTVPSATHHIEAMVQLMVHFQWNWIVVLVSDDDYGRENSHLLSQRLTKTSD 235
humanT1R2       DKVRFPALLRTTPSADHHVEAMVQLMLHFRWNWIIVLVSSDTYGRDNGQLLGERVARR-D 231
catT1R2         DKQRFPALLPTAPGADHQIEAMVQLMLYFRRNWIIALVSSGDCGRDDSQLLSDRPAGG-D 231
mouseT1R1       GKRKFPSFLRTIPSDKYQVEVIVRLLQSFGWVWISLVGSYGDYGQLGVQALEELATPR-G 237
ratT1R1         AKRKFPSFLRTVPSDRHQVEVMVQLLQSFGWVWISLIGSYGDYGQLGVQALEELAVPR-G 235
humanT1R1       VKRQYPSFLRTIPNDKYQVETMVLLLQKFGWTWISLVGSSDDYGQLGVQALENQATGQ-G 236
catT1R1         VKRHYPSFLRTIPSDKHQVEAMVLLLQSFGWVWISVVGSDGDYGQLGVQALEEQATQQ-G 236
mouseT1R3       DRETFPSFFRTVPSDRVQLQAVVTLLQNFSWNWVAALGSDDDYGREGLSIFSSLANAR-G 234
ratT1R3         DRETFPSFFRTVPSDRVQLQAVVTLLQNFSWNWVAALGSDDDYGREGLSIFSGLANSR-G 234
humanT1R3       ARETFPSFFRTVPSDRVQLTAAAELLQEFGWNWVAALGSDDEYGRQGLSIFSALAAAR-G 234
catT1R3         NREIFPSFFRTVPSDQVQVAAMVELLEELGWNWVAAVGSDDEYGRQGLSLFSGLASAR-G 238
                 :  :*::: * *.   :: . . *:  :   *:  : * .  *: .   :        .
```

Figure 2B

```
mouseT1R2       ICIAFQEVLPVPEPNQAVRPEEQDQLDNILDKLRR-TSARVVVIFSPELSLHNFFREVLR 294
ratT1R2         ICIAFQEVLPIPESSQVMRSEEQRQLDNILDKLRR-TSARVVVVFSPELSLYSFFHEVLR 294
humanT1R2       ICIAFQETLPTLQPNQNMTSEERQRLVTIVDKLQQ-STARVVVVFSPDLTLYHFFNEVLR 290
catT1R2         TCIAFRETLPMPQPNQAVTQWERRRLKAIVDEQQRQSSARVVVLLSPKLVLHNFFREVLR 291
mouseT1R1       ICVAFKDVVPLS------AQAGDPRMQRMMLRLAR-ARTTVVVVFSNRHLAGVFFRSVVL 290
ratT1R1         ICVAFKDIVPFS------ARVGDPRMQSMMQHLAQ-ARTTVVVVFSNRHLARVFFRSVVL 288
humanT1R1       ICIAFKDIMPFS------AQVGDERMQCLMRHLAQ-AGATVVVVFSSRQLARVFFESVVL 289
catT1R1         ICVAFKDIIPFS------ARPGDERMQSIMHHLAR-ARTTVVVVFSSRQLARVFFESVVL 289
mouseT1R3       ICIAHEGLVPQHD----TSGQQLGKVLDVLRQVNQ-SKVQVVVLFASARAVYSLFSYSIH 289
ratT1R3         ICIAHEGLVPQHD----TSGQQLGKVVDVLRQVNQ-SKVQVVVLFASARAVYSLFSYSIL 289
humanT1R3       ICIAHEGLVPLPR----ADDSRLGKVQDVLHQVNQ-SSVQVVLLFASVHAAHALFNYSIS 289
catT1R3         ICIAHEGLVPLP-----PGSLRLGALQGLLRQVNQ-SSVQVVVLFSSAHAARTLFSYSIR 292
                 *:*..  :*               :  :: .  : : . **::::       :*   :

mouseT1R2       WNFTGFVWIASESWAIDPVLHNLTELRHTGTFLGVTIQRVSIPGFSQFRVRHDKPEYPMP 354
ratT1R2         WNFTGFVWIASESWAIDPVLHNLTELRHTGTFLGVTIQRVSIPGFSQFRVRRDKPGYPVP 354
humanT1R2       QNFTGAVWIASESWAIDPVLHNLTELGHLGTFLGITIQSVPIPGFSEFREWGPQAGPPPL 350
catT1R2         QNLTGVVRIASESWAIDPVLHDRPTRCTASWAAPRPAAPGRLSLAGEAPPTESRGHTRRR 351
mouseT1R1       ANLTGKVWIASEDWAISTYITNVPGIQGIGTVLGVAIQQRQVPGLKEFEESYVQAVMGAP 350
ratT1R1         ANLTGKVWVASEDWAISTYITSVTGIQGIGTVLGVAVQQRQVPGLKEFEESYVRAVTAAP 348
humanT1R1       TNLTGKVWVASEAWALSRHITGVPGIQRIGMVLGVAIQKRAVPGLKAFEEAYARADKKAP 349
catT1R1         ANLTAKVWIASEDWAISRHISNVPGIQGIGTVLGVAIQQRLVPGLKEFEEAYVQADKGAP 349
mouseT1R3       HGLSPKVWVASESWLTSDLVMTLPNIARVGTVLGFLQRGALLPEFSHYVETHLALAADPA 349
ratT1R3         HDLSPKVWVASESWLTSDLVMTLPNIARVGTVLGFLQRGALLPEFSHYVETRLALAADPT 349
humanT1R3       SRLSPKVWVASEAWLTSDLVMGLPGMAQMGTVLGFLQRGAQLHEFPQYVKTHLALATDPA 349
catT1R3         CKLSPKVWVASEAWLTSDLVMTLPGMPGVGTVLGFLQQGAPMPEFPSYVRTRLALAADPA 352
                  ::  * :*** *  .  :

mouseT1R2       NETSLRTTC--NQDCDACMNITESFNNVLMLSG------------ERVVYSVYSAVYAVA 400
ratT1R2         NTTNLRTTC--NQDCDACLNTTKSFNNILILSG------------ERVVYSVYSAVYAVA 400
humanT1R2       SRTSQSYTC--NQECDNCLNATLSFNTILRLSG------------ERVVYSVYSAVYAVA 396
catT1R2         RHSPEWLPWRPLPCSSVPLSGRVLGKLAGEARGRTLSPDT---------------------391
mouseT1R1       RTCPEGSWCGTNQLCRECHAFTTWNMPELGAFS------------MSAAYNVYEAVYAVA 398
ratT1R1         SACPEGSWCSTNQLCRECHTFTTRNMPTLGAFS------------MSAAYRVYEAVYAVA 396
humanT1R1       RPCHKGSWCSSNQLCRECQAFMAHTMPKLKAFS------------MSSAYNAYRAVYAVA 397
catT1R1         GPCSRTSECSSNQLCRECRAFTAEQMPTLGAFS------------MSSAYNAYRAVYAVA 397
mouseT1R3       FCASLN-AELDLEEHVMGQRCPRCDDIMLQNLSSGLLQNLSAGQLHHQIFATYAAVYSVA 408
ratT1R3         FCASLK-AELDLEERVMGPRCSQCDYIMLQNLSSGLMQNLSAGQLHHQIFATYAAVYSVA 408
humanT1R3       FCSALGEREQGLEEDVVGQRCPQCDCITLQNVS--------AGLNHHQTFSVYAAVYSVA 401
catT1R3         FCASLDAEQPGLEEHVVGPRCPQCDHVTLENLS--------AGLLHHQTFAAYAAVYGVA 404


mouseT1R2       HTLHRLLHCNQVRCTK-QIVYPWQLLREIWHVNFTLLGNQLFFDEQGDMPMLLDIIQWQW 459
ratT1R2         HALHRLLGCNRVRCTK-QKVYPWQLLREIWHVNFTLLGNRLFFDQQGDMPMLLDIIQWQW 459
humanT1R2       HALHSLLGCDKSTCTK-RVVYPWQLLEEIWKVNFTLLDHQIFFDPQGDVALHLEIVQWQW 455
catT1R2         ------------ ---------------------------------------------- 391
mouseT1R1       HGLHQLLGCTSGTCAR-GPVYPWQLLQQIYKVNFLLHKKTVAFDDKGDPLGYYDIIAWDW 457
ratT1R1         HGLHQLLGCTSEICSR-GPVYPWQLLQQIYKVNFLLHENTVAFDDNGDTLGYYDIIAWDW 455
humanT1R1       HGLHQLLGCASGACSR-GRVYPWQLLEQIHKVHFLLHKDTVAFNDNRDPLSSYNIIAWDW 456
catT1R1         HGLHQLLGCASGACSR-DRVYPWQLLEQIRKVNFLLHKDTVRFNDNGDPLSGYDIIAWDW 456
mouseT1R3       QALHNTLQCNVSHCHVSEHVLPWQLLENMYNMSFHARDLTLQFDAEGNVDMEYDLKMWVW 468
ratT1R3         QALHNTLQCNVSHCHTSEPVQPWQLLENMYNMSFRARDLTLQFDAKGSVDMEYDLKMWVW 468
humanT1R3       QALHNTLQCNASGCPAQDPVKPWQLLENMYNLTFHVGGLPLRFDSSGNVDMEYDLKLWVW 461
catT1R3         QALHNTLRCNASGCPRREPVRPWQLLENMYNVSFRARGLALQFDASGNVNVDYDLKLWVW 464
                              *

mouseT1R2       GLSQNPFQSIASYSPTETRLTY-ISNVSWYTPNNTVPISMCSKSCQPGQMKKPIGLHPCC 518
ratT1R2         DLSQNPFQSIASYSPTSKRLTY-INNVSWYTPNNTVPVSMCSKSCQPGQMKKSVGLHPCC 518
humanT1R2       DRSQNPFQSVASYYPLQRQLKN-IQDISWHTVNNTIPMSMCSKRCQSGQKKKPVGIHVCC 514
catT1R2         -------------------------- ---------------------------------
mouseT1R1       NGPEWTFEVIGSASLSPVHLDINKTKIQWHGKNNQVPVSVCTRDCLEGHHRLVMGSHHCC 517
ratT1R1         NGPEWTFEIIGSASLSPVHLDINKTKIQWHGKNNQVPVSVCTTDCLAGHHRVVVGSHHCC 515
humanT1R1       NGPKWTFTVLGSSTWSPVQLNINETKIQWHGKDNQVPKSVCSSDCLEGHQRVVTGFHHCC 516
catT1R1         SGPKWNFRVIGSSMWPPVQLDINKTKIRWHGKDNQVPKSVCSSDCLEGHQRVISGFYHCC 516
mouseT1R3       QSPTPVLHTVGTFNG---TLQLQQSKMYWP--GNQVPVSQCSRQCKDGQVRRVKGFHSCC 523
ratT1R3         QSPTPVLHTVGTFNG---TLQLQHSKMYWP--GNQVPVSQCSRQCKDGQVRRVKGFHSCC 523
humanT1R3       QGSVPRLHDVGRFNG---SLRTERLKIRWHTSDNQKPVSRCSRQCQEGQVRRVKGFHSCC 518
catT1R3         QDPTPELRTVGTFKG---RLELWRSQMCWHTPGKQQPVSQCSRQCKEGQVRRVKGFHSCC 521
                                        *              .  *:
```

Figure 2C

```
mouseT1R2       FECVDCPPGTYLNRSVDEFNCLSCPGSMWSYKNNIACFKRRLAFLEWHEVPTIVVTILAA 578
ratT1R2         FECLDCMPGTYLNRSADEFNCLSCPGSMWSYKNDITCFQRRPTFLEWHEVPTIVVAILAA 578
humanT1R2       FECIDCLPGTFLNHTEDEYECQACPNNEWSYQSETSCFKRQLVFLEWHEAPTIAVALLAA 574
catT1R2         ------------------------------------------------------------
mouseT1R1       FECMPCEAGTFLNTS-ELHTCQPCGTEEWAPEGSSACFSRTVEFLGWHEPISLVLLAANT 576
ratT1R1         FECVPCEAGTFLNMS-ELHICQPCGTEEWAPKESTTCFPRTVEFLAWHEPISLVLIAANT 574
humanT1R1       FECVPCGAGTFLNKS-DLYRCQPCGKEEWAPEGSQTCFPRTVVFLALREHTSWVLLAANT 575
catT1R1         FECVPCEAGSFLNKS-DLHSCQPCGKEKWAPAGSETCFPRTVVFLTWHETISWVLLAANT 575
mouseT1R3       YDCVDCKAGSYRKHP-DDFTCTPCNQDQWSPEKSTACLPRRPKFLAWGEPVVLSLLLLLC 582
ratT1R3         YDCVDCKAGSYRKHP-DDFTCTPCGKDQWSPEKSTTCLPRRPKFLAWGEPAVLSLLLLLC 582
humanT1R3       YDCVDCEAGSYRQNP-DDIACTFCGQDEWSPERSTRCFRRRSRFLAWGEPAVLLLLLLLS 577
catT1R3         YNCVDCKAGSYQRNP-DDLLCTQCDQDQWSPDRSTRCFARKPMFLAWGEPAVLLLLALLA 580
                                                          :   :*

mouseT1R2       LGFISTLAILLIFWRHFQTPMVRSAGGPMCFLMLVPLLLAFGMVPVYVGPPTVFSCFCRQ 638
ratT1R2         LGFFSTLAILFIFWRHFQTPMVRSAGGPMCFLMLVPLLLAFGMVPVYVGPPTVFSCFCRQ 638
humanT1R2       LGFLSTLAILVIFWRHFQTPIVRSAGGPMCFLMLTLLLVAYMVVPVYVGPPKVSTCLCRQ 634
catT1R2         ------------------------------------------------------------
mouseT1R1       LLLLLLIGTAGLFAWRLHTPVVRSAGGRLCFLMLGSLVAGSCSLYSFFGKPTVPACLLRQ 636
ratT1R1         LLLLLLVGTAGLFAWHFHTPVVRSAGGRLCFLMLGSLVAGSCSFYSFFGEPTVPACLLRQ 634
humanT1R1       LLLLLLLGTAGLFAWHLDTPVVRSAGGRLCFLMLGSLAAGSGSLYGFFGEPTRPACLLRQ 635
catT1R1         LLLLLVTGTAGLFAWHLDTPVVKSAGGRLCFFMLGSLAGGSCGLYGFFGEPTLPTCLLRQ 635
mouseT1R3       LVLGLALAALGLSVHHWDSPLVQASGGSQFCFGLICLGLFCLSVLLFPGRPSSASCLAQQ 642
ratT1R3         LVLGLTLAALGLFVHYWDSPLVQASGGSLFCFGLICLGLFCLSVLLFPGRPRSASCLAQQ 642
humanT1R3       LALGLVLAALGLFVHHRDSPLVQASGGPLACFGLVCLGLVCLSVLLFPGQPSPARCLAQQ 637
catT1R3         LALGLALAALGLFLWHSDSPLVQASGGPRACFGLACLGLVCLSVLLFPGQPGPASCLAQQ 640

mouseT1R2       AFFTVCFSVCLSCITVRSFQIVCVFKMARRLPSAYGFWMRYHGPYVFVAFITAVKVALVA 698
ratT1R2         AFFTVCFSICLSCITVRSFQIVCVFKMARRLPSAYSFWMRYHGPYVFVAFITAIKVALVV 698
humanT1R2       ALFPLCFTICISCIAVRSFQIVCAFKMASRFPRAYSYWVRYQGPYVSMAFITVLKMVIVV 694
catT1R2         ----- ------------------------------------------------------
mouseT1R1       PLFSLGFAIFLSCLTIRSFQLVIIFKFSTKVPTFYHTWAQNHGAG-IFVIVSSTVHLFLC 695
ratT1R1         PLFSLGFAIFLSCLTIRSFQLVIIFKFSTKVPTFYRTWAQNHGAG-LFVIVSSTVHLLIC 693
humanT1R1       ALFALGFTIFLSCLTVRSFQLIIIFKFSTKVPTFYHAWVQNHGAG-LFVMISSAAQLLIC 694
catT1R1         SLLALGFAIFLSCLTIRSFQLVFIFKFSAKVPTFYRAWVQNHGPG-LFVVISSMAQLLIC 694
mouseT1R3       PMAHLPLTGCLSTLFLQAAETFVESELPLSWANWLCSYLRGLWAW-LVVLLATFVEAALC 701
ratT1R3         PMAHLPLTGCLSTLFLQAAEIFVESELPLSWANWLCSYLRGPWAW-LVVLLATLVEAALC 701
humanT1R3       PLSHLPLTGCLSTLFLQAAEIFVESELPLSWADRLSGCLRGPWAW-LVVLLAMLVEVALC 696
catT1R3         PLFHLPLTGCLSTFFLQAAEIFVGSELPPSWAEKMRGRLRGPWAW-LVVLLAMLAEAALC 699
                       :  :*   :          ::.

mouseT1R2       GNMLATTINPIGRTDPDDPNIIILSCHPNYRNGLLFNTSMDLLLSVLGFSFAYVGKELPT 758
ratT1R2         GNMLATTINPIGRTDPDDPNIMILSCHPNYRNGLLFNTSMDLLLSVLGFSFAYMGKELPT 758
humanT1R2       IGMLATGLSPTTRTDPDDPKITIVSCNPNYRNSLLFNTSLDLLLSVVGFSFAYMGKELPT 754
catT1R2         -------- ------------------------------------------------------
mouseT1R1       LTWLAMWTPRPTREYQRFPHLVILECTEVNSVGFLVAFAHNILLSISTFVCSYLGKELPE 755
ratT1R1         LTWLVMWTPRPTREYQRFPHLVILECTEVNSVGFLLAFTHNILLSISTFVCSYLGKELPE 753
humanT1R1       LTWLVVWTPLPAREYQRFPHLVMLECTETNSLGFILAFLYNGLLSISAFACSYLGKDLPE 754
catT1R1         LTWLAVWTPLPTREYQRFPQLVVLDCTEANSPGFMLAFAYNGLLSVSAFACSYLGKDLPE 754
mouseT1R3       AWYLIAFPPEVVTDWSVLPTEVLEHCHVRSWVSLGLVHITNAMLAFLCFLGTFLVQSQPG 761
ratT1R3         AWYLMAFPPEVVTDWQVLPTEVLEHCRMRSWVSLGLVHITNAVLAFLCFLGTFLVQSQPG 761
humanT1R3       TWYLVAFPPEVVTDWHMLPTEALVHCRTRSWVSFGLAHATNATLAFLCFLGTFLVRSQPG 756
catT1R3         AWYLVAFPPEVVTDWRVLPTEALVHCHVHSWISFGLVHATNAMLAFLCFLGTFLVQSRPG 759

mouseT1R2       NYNEAKFITLSMTFSFTSSISLCTFMSVHDGVLVTIMDLLVTVLNFLAIGLGYFGPKCYM 818
ratT1R2         NYNEAKFITLSMTFSFTSSISLCTFMSVHDGVLVTIMDLLVTVLNFLAIGLGYFGPKCYM 818
humanT1R2       NYNEAKFITLSMTFYFTSSVSLCTFMSAYSGVLVTIVDLLVTVLNLLAISLGYFGPKCYM 814
catT1R2         ------------------------------------------------------------
mouseT1R1       NYNEAKCVTFSLLLHFVSWIAFFTMSSIYQGSYLPAVNVLAGLATLSGGFSGYFLPKCYV 815
ratT1R1         NYNEAKCVTFSLLLNFVSWIAFFTMASIYQGSYLPAVNVLAGLTTLSGGFSGYFLPKCYV 813
humanT1R1       NYNEAKCVTFSLLFNFVSWIAFFTTASVYDGKYLPAANMMAGLSSLSSGFGGYFLPKCYV 814
catT1R1         NYNEAKCVTFSLLLNFVSWIAFFTTASVYQGKYLPAVNVLAALSSLSGGFSGYFLPKCYV 814
mouseT1R3       RYNRARGLTFAMLAYFITWVSFVPLLANVQVAYQPAVQMGAILVCALGILVTFHLPKCYV 821
ratT1R3         RYNRARGLTFAMLAYFIIWVSFVPLLANVQVAYQPAVQMGAILFCALGILATFHLPKCYV 821
humanT1R3       RYNRARGLTFAMLAYFITWVSFVPLLANVQVVLRPAVQMGALLLCVLGILAAFHLPRCYL 816
catT1R3         RYNGARGLTFAMLAYFITWISFVPLFANVHVAYQPAVQMGTILLCALGILATFHLPKCYL 819
```

Figure 2D

```
mouseT1R2       ILFYPERNTSAYFNSMIQGYTMRKS---------------------- 843
ratT1R2         ILFYPERNTSAYFNSMIQGYTMRKS---------------------- 843
humanT1R2       ILFYPERNTPAYFNSMIQGYTMRRD---------------------- 839
catT1R2         ---------------------------------------------
mouseT1R1       ILCRPELNNTEHFQASIQDYTRRCGTT-------------------- 842
ratT1R1         ILCRPELNNTEHFQASIQDYTRRCGTT-------------------- 840
humanT1R1       ILCRPDLNSTEHFQASIQDYTRRCGST-------------------- 841
catT1R1         ILCRPKFNSTQHFQASIQEYTRRCGST-------------------- 841
mouseT1R3       LLWLPKLNTQEFFLGRN--AKKAADENSGGGEAAQGHNE-------- 858
ratT1R3         LLWLPELNTQEFFLGRS--PKEASDGNSGSSEATRGHSE-------- 858
humanT1R3       LMRQPGLNTPEFFLGG---GPGDAQGQNDGNTGNQGKHE-------- 852
catT1R3         LLQRPELNTPEFFLEDNARAQGSSWGQGRGESGQKQVTPDPVTSPQ 865
```

Figure 3

Phylogenetic Tree of T1Rs:

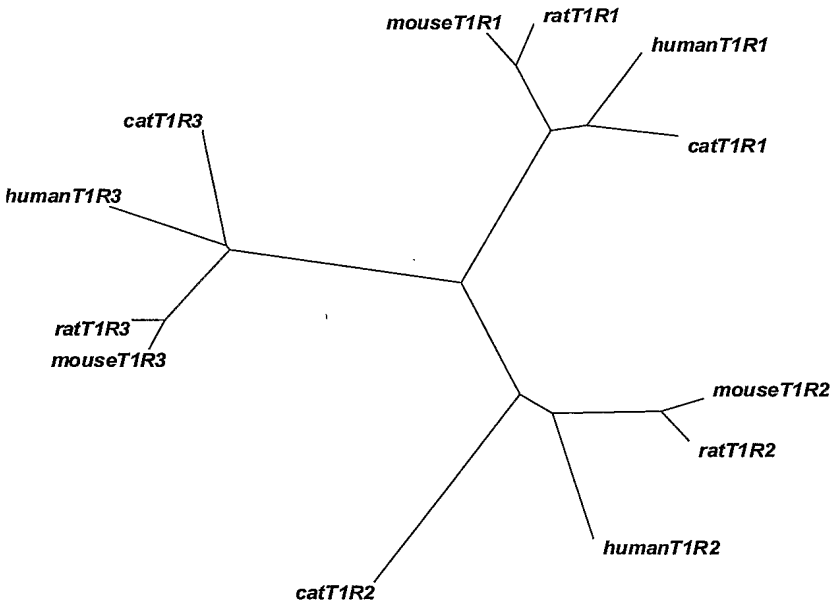

Figure 4.

Predicted conformation of the 7TM T1R3 protein sequence from cat.
Arrow points to region of possible functional amino acid substitution.

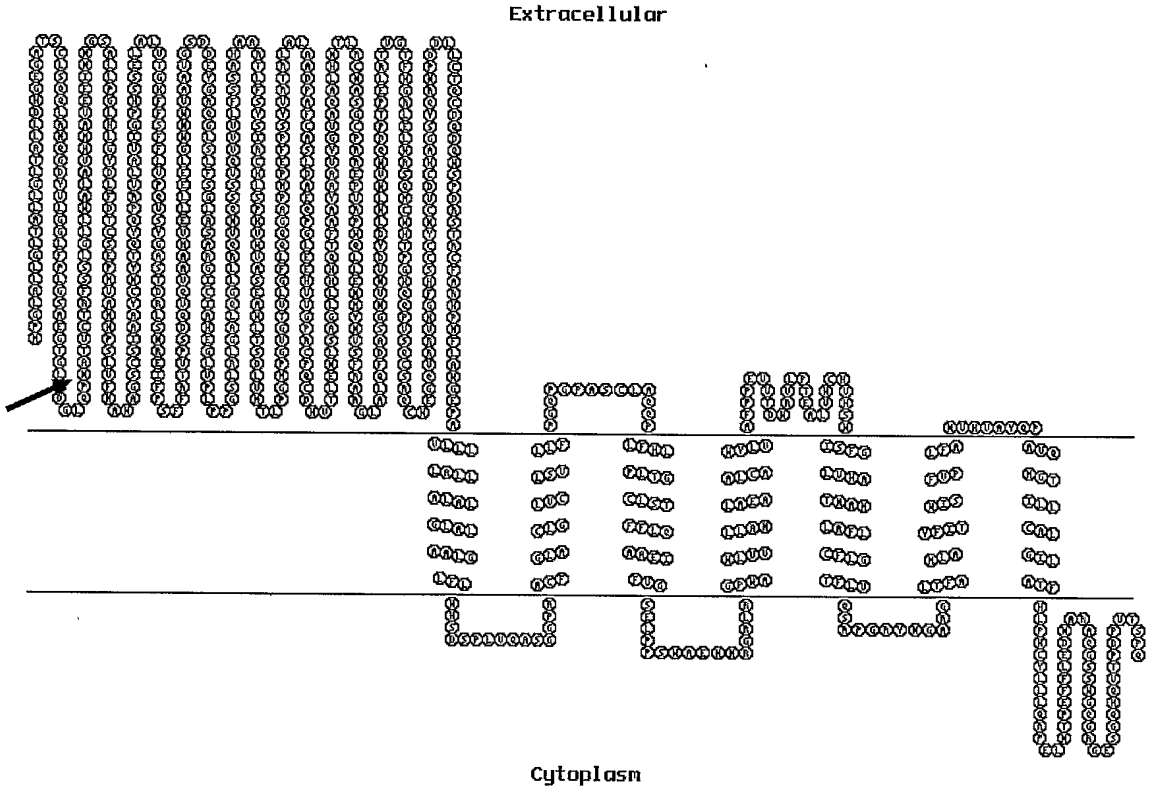

Figure 5A Predicted conformation of the 7TM T1R1 protein sequence from cat.
Figure 5B Predicted conformation of the cat T1R2 protein sequence.

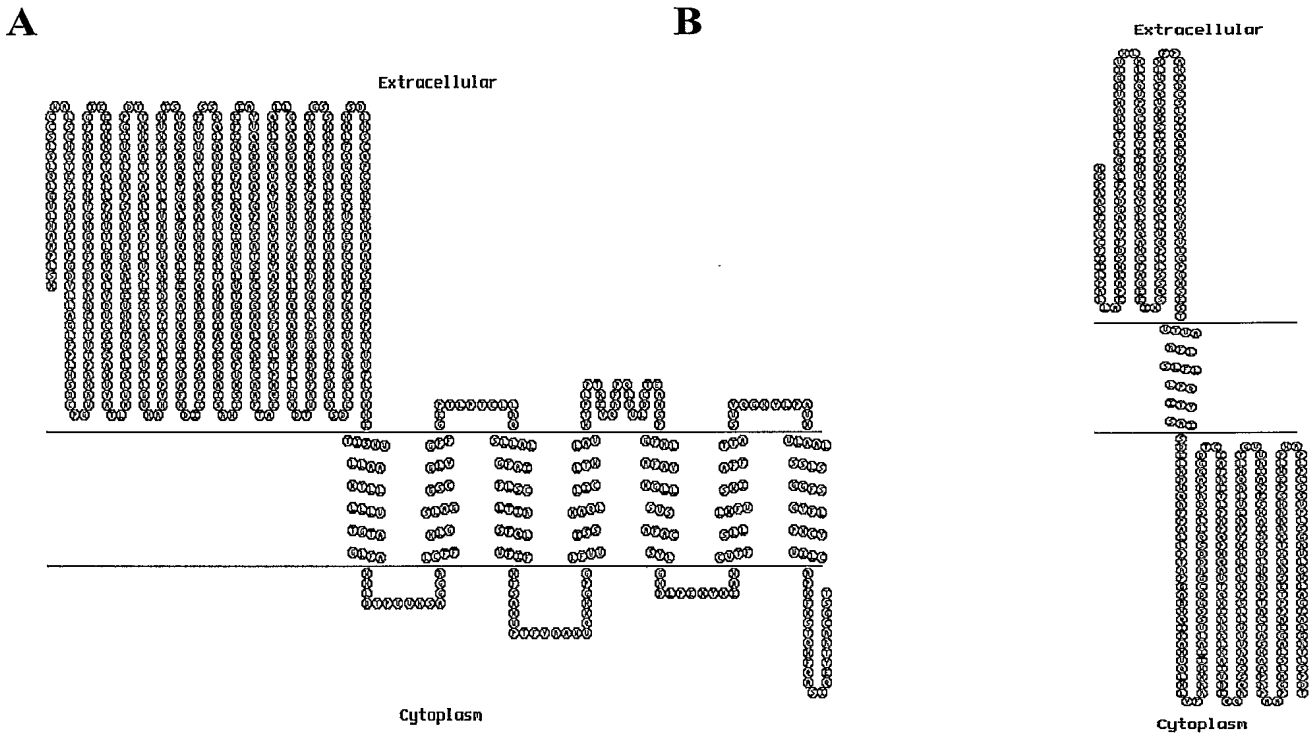

Figure 6A Genomic sequences of cat T1R1 obtained from BAC sequencing

CTGGAAAAAAAGGNGAACCCAGGATGATTCACCCCAAAATTTCAGTNTCAGAAAANTGAGGACTGGNA
GGAGGTCAACTTAAAGTCAGTTTCATTTGGTAAACTGAGGCCCAGGTAAAAAGTTCTAAAACCCACAG
CTCCCTTCCATATTCTGTCCCCCAGAGAAGCAGTGTCCCTGCCTTCCTCTGACCCCTGCCCCTCAAGA
CGCCTGGGCTCCCTTTCTGAGCCGGGTGAAGCCGCAGGCACCAGAGCGAGAACAGAACCCACAACCAT
CCAGAGGGAGGGGCAGCGGCCACCACCTGGCTTGCACCTGTGCCTTCACCCTGCCCAGTTCCTGAGTA
GGACCGCAGGCCCGGAAGGCCAAGGCAAACAGCCTGGTTCCTACGACTGGGTTCCAGCCCCACCCCTG
GCACAGGCGTGAAGTTGGGAAGCATCTGGGCAGCCGCTGTCTATTCTATTTAAACAGCCGAGCTGGTC
AGAGGGTGCTGGCTGGCCATGCCAGGCACAGGACGGACTGGCCAGCATGTCACTCCCGGCGGCTCACC
TGGTCGGCCTGCAGCTCTCCCTCTCCTGCTGCTGGGCTCTCAGCTGCCACAGCACAGAGACGTCTGCC
GACTTCAGCCTCCCTGGGGATTACCTCCTCGCAGGTCTGTTCCCTCTGCACTCTGACTGTCCGGGCGT
GAGGCACCGGCCCACGGTGACCCTCTGTGACAGGTGAGTGAGGGGTCCCGTGCCTCTAGGACCTCTGC
CCATCCTCTGTCCTCCTCAGTGAGGATCCTTGGGTTGTTGATTGAGTGGAGTTAGGGCCTTTTAGAGA
GCTGAGACTCTAGAAGCTAAACCACGTGTTGCTTTACCTGTCTTCCACCCTGAGGATCACACGTTAAG
TGTTCTTACCAGTCAAAATTGAATATGTATCAAACAAAAATAAATGGCCTTCCATGCTGAAATAACAA
AAAACAGACACGCATGGAGAACCTACTTTGTGGGGCGCCTGGGTGGCCCAGTCGGTTAAGTGTCTGCC
TCTTCGTTTTGGCTCAGGTCATGACCTCGGGGTTCATGAGTTCGAGCCCCGCGTCAGCTCCGTGATGA
GCCTGGAGCCCGCTTGGAATTCCCTCCCCACCCCCACCCCCCGCTCATGCCAGCTCGAGCTCTCGCTC
ACTCTCTCAAAATAAACTTAAGAGGGGCGCCTGGGTGGCGCAGTCAGTTAAGCGTCCGACTTCAGCCA
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CTTCAGTCTGTTCGGTGGAAATGACTCTGATGTCATAAACTGACTCGGCTTCGCTGACAGGAAAGTCG
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GTGCAGAAATGGGCAGCTGTCGAGAGTGAAGAAATTGGGAAGTTGGCACGGAAGAGGGGACCGAGTCC
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GCGGAACCACTTAGAAACAAGGCGTCAGAATTAGAGACTTCGGTTCATGCAGGGAGGGCGGCCCAGGG
GGGTGGCGTCCTTGGAAACTCTGGTAAGTTTGAGATTGATCCCAGGGGTCGTGGGATGGAGCCTCGCA
TGAGACTCTACACTGATCGATGAGAAGCAGAAGCCCCTTGTCTGTGAGGAAGGGGACACGAGCAGTTG
GCACACTAAAACGCAAGGACACGTTTCTACGAGAAAACGGTACATCTGTCTGCGACACAGAAAGATCC
CCGGNACCAGTCNTCGNNNNNNNNTTCCGNTGGGATTCCAGTCAGCAGTTCCCGAGAGGCACTGAGGA
ACACAGGCCCTCACCACGTTCACAAGTGTCCTGATGAGAGGGATACTAGGTAAACGAGGTTCGA:CAG
GTGTGGTGGTTAATTTTATACATCAACCTGGCTAGGGTACGGTGCCCAGTTGTTTGGCCAAACACCAG
TCTAGATGGGGCTGTGAAGGTTAACATTTAAACCAACAGGGTGAGTAAAGCAGATCGCTTTCCATTGT

Figure 6B

GTGGGTGGGCCTCATCCAATCAGTTGAAGACCTTAAAAGAAAAGATTGAGGTCCCCCCAAAAAGGAAG
AAATTCTGCCTTCGAACTCAACACTGCAGCTTTGACCACTGAGAGCATTTCCAGCCTGCCCTGCAAAC
GCCAGACTCACCAGCCCCACAATCATGTGAACCAATTCCTTAAAATAAACTTCTCTTTCTCTCTCTCT
ATCCAACTGGTTCTGTTTCTCTGCAGAACCCTGACTCACGCAGCAGGTTTCCCTGCTACAGGACTTCA
TCAGCCTTTCAACCCTAATATGCTCATCCAGGGAGGAATGGTTTGTGGTTTCTCCAAGTTGTAACCGC
CCCTCCCCCCCCCGCCCCCGCCCCCCCAAAGGCCTGTTAACACAGCTGAGTGTATGGTACAGGGCCCAC
AGTGAGGTCATGGTGGTAGGGGACGGGACAGATGCCCTCAGAGTTTCCTTTCTACCCTTCCCCCCACC
CCCGACGCCAAGAGGGTCTCGGCAAGGCCTTGCTCCTCTGAGCTCTCAGCTGGGCTTTCTCTACAGGC
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AACTCCACGGCCCTCCTGCCGAACGTCACCCTGGGATACCAGCTGTACGACGTGTGCTCGGAGTCTGC
CAACGTGTATGCCACACTAAACGTGCTCTCCCTGCTGGGGACACATCACGTAGAGATCCGAGCAGACC
CTTCCCACTATTCGCCTGCCGCCCTGGCTGTCATTGGGCCTGACACCACCAACCACGCAGCCACCACT
GCAGCCCTGCTGAGCCCCTTCCTGGTGCCCCTGGTGAGCTGGAGCCCGGGGGCCTGTCCATCTCCCCT
GCCGGCAGGTCCAGTGTGGGCTGAGGGGGTGGGGGGGTGGGCAAGAGCTGCCATGCCCACTCTGAGTC
TCCTGGGTGGTCACATTGCAGGGGGCCCTGCCCCCTTCACAGTCCCCGCCCCAGCATCCCTTCCTCCC
CAAGTGCTGCATCCAGACCTCCCTGCCTCAATGTCCTGAGAAAAACCGTCTCCTTTGAAACTGCTGCC
CTTTGCTCTGCCCCCTCCATTCCATCTCCTCTGTGAAGAACGGAACACCCTTTGTTTCCCACCTCACA
CACTTGTCCACTTCTCCCCGCCCTCCTCCTTCCGGTCTTCCTTCCCTCCCTCCCAGCTCAGGCTCAGA
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TCCTAGGCTTCCTCCTCCGCCTATAAGCTGGCTTTACCCCTCTCTGTCTTCCAGGCACCTGTGGTCTT
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TCTCCCTCTCATCACTTGCTTCCCGGGCCCCTGCCCTGACTGCTGCACCACCACTCCTGCTCTTGTGA
TCTCCAGGGCTTTCTAGATCTCCAGGTCCAGCAAATGCTTTTCAGCCCTTCTTTGCTTGACATGACGA
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TCTTCAAGAATCTTTCTGGCTGGTCTAAAAATAAGTTGATGTGACACAGANAAAAGGAAAAGTCAAAT
CACGTATGTACAGGGANCTACNAAACACGAAAGGTCAAGANAGGAAAGNGAGGCTANCTGCTATCTGA
ACTATGAACAAGGGNAGGGGTAAATTCAAGGAAAGAAGAAATCANAGAAAGAAGAGGNANGGTATAAA
AGNTGCTGGCCATCAAAAATGGAAGGAAGAATTANAANNGATTGGAGNNNNNNNNNNNNNNNNNNNN
NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNCTTTTTCCCGTCACCGGTGGCCAGGGTTAAA
TTCAGGCTGCCAAGCTGTTTTTTGGGATGACTCCAGCAGTCTCCTAGGGAGTTCTTCCTGACTCTGGT
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TACCTCTCTGCCTAGACATTTAAGGGGCTCCCCAGGGCCTGCAGATAAAGACCAAGTATCTTAGCTAT
CTTGGTGCCAGGAGTAAGGCCTCCTGCCCTGACCAGACACGCCTACTTTTGTGCTCCTTCTTCCGGCT

Figure 6C

TCCAACCTCCTGGGTCAGTTCTCTCACTGGGTGTAGCTTTTGTTCTCTTCCCCTTCTTCTCCCACAAA
CCTCCCCCTGGGTTTCTGCCTCTTCTTTAGATGTAGCTGGTCGGCCTCCTAGTCCACCAGAGCTGTCC
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ATGAGTGGGAGAATGACTGGGCACTCCCAGGGTCTGTATGGCAGATGAGGGGATCTCCCTTGGGCCAC
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Figure 6D

GATGTAGTTATGTTCCCTTGTCCCCTCCCATGCTGTCTGTGTGAAGTCCCTTCCGTCGCCCCTGCCAA
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GGGGCG

Figure 7A Genomic sequences of cat T1R2 obtained from BAC sequencing

TTAGCTGCTGAAACGCTGCTTTTTAGCAAAAGGCCGTGACCTCATGATGTTATACGTCGTGGAGATTGA
GAACCAGGTCCTAGCATCTGACTATGTGCTTTGAGTCCCCACTTTTGCTGGTTGTGCAACCCAGGGTGA
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CCTGGGTCAGGGGCTGTATATAAAGTACTACCTGCCAGGATCAACTTGATCCGGTTCTATTCTGTCTCC
TGGGTGAGTATCTGTGCCCTTTACTCCCAGATGTTGGAAATGTCAGGGGCATGAGACCTGTCCTTAACC
GAGTGGCAGAAGGTTAAGTTTGTGTCCGAGATAGCAGGACATGCTTTCTCTACCTCCGCAGGGCGTTCT
CCCAGACCCCCCAGGGCCCACCATGCCCTGCTAGGAAGGGATCATCCTAATTCTAGCCTCTTCTTCCGC
CCCAGAGTTCTGAAGCTTCTCCACCTGTCCAGGTGTTTCCCCACCCCTTCAGCCACGGCAAGACCGTCA
CTATGTAAATGTCTGTGCAAATCCCCTGGTGTCAAGCTGCCAGCTCTCTGATGAGGCAGGGCCACCTCC
GGGGACCCCTCACTTCCCAGCCATGGGACCCCGGGCCAGGGAAGTCTGCTGCTTCATCATCCTGCCGCG
GCTCCTGGCTGAGCCGGCTGAGAACTCAGACTTCTACTTGGCTGGGGATTACTTCCTCGGCGGCCTCTT
CACCCTCCATGCCAACGTGAAGGGCATCGTCCACCTCAACCTCCTGCAGGTGCCCCAGTGCAAGGAGTG
AGTCGCCAATGTGGGGCTGGAAGTGGCGACGGGGGCGGAGTGGGAAGCCTGGGCTGGTCCTGTGCTCCT
CAGGGGACCACGCCAGGACCAAGGGCTCAAAATGCTCTTCCTCATTCATTGCCAACCTCTCATCCCGCA
TTATCCCCACCGGCCTGCAGGGAGACCCCATGCAGTTCATGTTACCAAAATCTTTGGCAATTGTATTCT
GAAATATGGAGAGCTGGTTGTCCCGCCGTGTGTCTTAATAAATAAAGAGTTACAGGGTACTTGAGCCTG
GAGGGGTTGTAGAGACCACCCCCACCTACTTTGTCAAGTGGGGAACTCCTACTGAGTCCGTGTCAAGTC
CAAGTCTAGACACCGGGGGTTATGCCTTTGGAAGGCAGAAATGTGGTTTTTCGGTAGCAGGTTCTCAGA
CTGGAGGGGAAGGTTTGCATTTCTCTAGGGCTGTGGTTAGGTGGGAAGGGGTGCTTCCAGGACCAGAAG
GGATTTCCTCCACTCACCTTGTCCCCTGTGAGCCCTGGGGGTGGCTGCATCACTCAAGGTTGGGTGAGA
CACCTTTGTGCAAGTGCGAAGGCTGGGATGGCGGACCCAGCGTGGGATGATGAGATAGTGACTTGCTGC
AGAGAGGGTGAAGGCGTCCTGTGAGAGAGGGAGAGAAAAAAGTCTGTGACGTCGGGGAAGATCACATGC
TGGCTTGAGAATGACGNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
NNNNNNNNNNNNNNNNNNNNNNNNNNNNGATGTGGAGGTGATRGTGATGGCGGTGATTGTGACGGTGGTA
TCGGTGATGGTGGTCACAGACAACGCAGTTATAGTGATGGCAGTGGTGATAGGAATAGTAGGTGGTGAT
GGTCATTCTGGAGATGTGGCAGGTGACAACGATGAGATGAAAATGCCAGAATCTTCTGGAGTGGCTCCT
TCTTGAGCCACTCCTCGGCTTTCCTATGGCAGGCAGAGGGGACTCCCCGGCTCTCCTGTCCCTTCCCCC
TCTCACTCTGGACCTGCCTCTCACCCCACCCCACATGGCTCCCCCAGGTATGAAATAAAGGTGTTGGGC
TACGATCTCATGCAGGCCATGTGCTTTGCAGGGGAGGAGATCAATAGCCAGAGCAGCCTGCTGCCTGGC
GTGCTGCTGGGCTACAAAATGGTGGATGTCAGCTACATCTCCAACAATGTCCAGCCCGTGCTCCACTTC
CCGGCAAAGGAGGACTGTTCCTTGCCCATCCAGGAGGACTACAGCCACTGTGTGCCCCGTGTGGTGGCT
GTCATTGGTCCTGGCAACTCTGAGTCCACTGTGACTGTGGCCCGCTTCCTCTCTCTCTTCCTCCTTCCA
CAGGGGAGGCCCCTGGGTCCTGGGGTAAGGAGCTGGGGGGCAGAGGAGTGGTTATCCAGGGGGCTCACT
TCCCCCCACCGGTCCTGGGGGTAGGAGGAGGCAGGAAGTAGGGTCAGAATGTCAACCCCAATCCTRGGA
AGGCAGCCCAGCCACGTGGTTAAGAGCTCAGGCTTGGAGGCAGACAGACCKGGGNNNNNNNNNNNNNNN
NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNGCCTTCAGAGAGATCATCCTNTCAAGGGGGCCCTTAT
TCCTTTNCCCCTGGGAGCCCNTCAGTNCCCACCACTTTCTGCAGCNCCCATTCGGGTCTCCGATTCCTC

Figure 7B

CAATCCACTCACTCGCTGTGTGGCTCTGGATAAGTGACTGTCCCTCTCTGAACCTCAGCGTCCTCATCT
GCAAAGTGGAGACATAACAGCACATCAGAAGGTCGCGAGAATAGGGGCGCCTGGGAGGCTCAGTCGGTT
AAGCATCCGATTCTGGGTCGCGGCTCAGGTCATGATCTCCCGGTTCGTGAGTTCAAGCCCCGCATCGGG
CTGTGTGCTGACAGCACAGANCCTGCTTGGGATTCTGTCTTCCCTTCTCTCTGCCCCTCACCTGCTTTT
GCTCTCTCTCTCTCAAAATAAATAAATAAACTTTTTAAAAAAAAGGAAGGTAGTGAGAAAAAAGCGGGT
GACAGAGATGGAGAGGGCTCCACGCGGTACCTGGCATGCTGCGAGCCCTCAGAACCCGTTAGCGACGGA
AGTGACCTGTGTGCGTCGTCACCACCATCCCAGCAGGCCTTGAGGCTTCGACCCTGCCTCCCCCGCAAA
GCTCACAGTCTCCGAGGCTCCGGGCCACGTCCCCCGGGCGTCCTGTCTGTGTCCCTCGAACCCCGCCCA
GCCCTGCCGCACCGTGAGCTAGTCAGCGCCTGCTGGGTTCGTGACTCTCTCCGCCATTGTGCACCCTGG
GGCTGGGGCCACACCCAGGGGCTCCGGTTAATTTAGATGCTTTCTTTCTCTGCCATCTGCTTACCCCCG
AGCTTGGTTAGAGAGCCTGACTTTGCTGGGAGTCTCCAGAACGTCCCGGGACCTCCCAGCAACCAGCAT
CTTTATTCTCCCTCCTTAGAACTGATGTGTGCAGTCGCTGTGCCTCTGCAGCTCAGAGCAGGGGTGGTT
CCTGTGAACTGGGGCCAGGGGTGGTTTCCTGGAGGGGGCAAGGCACCGACTAGCCCTCGAAGAAGGAGC
CGGGCTTGGCTGAGGTGGGACAGGGGGAGAGCATGAGGTTTTCGGCCAGCTTTCTGTGCCTGGGAACCC
CCTCTCCCCACAACCCTGGATCCCAGAGGCCTTAACGGGCCCCAGCTGTAACAGACTCGTCTGTGTCGA
GCATTCCACAGTAGGTGTCCCCAGGCTCCCTCGGGGCCACCAAAGGACCACAACGACATTACGCGGACA
GGGTCTCAGATTCCGATGGGTCCCCTGTTTGCTGGAACCATCTCCCTTTGGAAATTTACAGCTCTCTTT
TCTGGCAGTAACCCCGCCCCTTGGTGCTGGGTACGAAGGGGGCACCCAGAGCGGGGCTCACCCAGCAGC
GCTGACTGCTGCGTTGTCGGGCTAACGGGTATTAACCGCCTCCCTCGCCGCTCCCATTCTCTTAGCTGC
TGAAACGCTGCTTTTTAGCAAAGGCCGTGACCTCATGATGTTATACGTCGTGGAGATTGAGAACCAGGT
CCTAGCATCTGACTATGTGCTTTGAGTCCCCACTTTTGCTGGTTGTGCAACCCAGGGTGAGCTTCGTAA
GCTTCTCTGTGCCTCAGTTTTCTCATCTGTGGAATGTGTGAGGGGGAGACCTCAGTTTCAAGCGGGGTG
GCCAGGAGGGCCTTTCTGACAACTGGACAACGACCTGAGGGAGAGGAAGGAGTGAGGGAGCTATGTGGG
TGCCTAGAAGAGCGCTCCGGAAGAGGGGGCAGCGAATGCAGAGGCCGGCAGGAGCCTGGTGCGTTGGCT
GAACCGGTGAGCAGCCCCGGGACCAGGCGGGACAGTAGGAGAAGATGAAGCCAGAGAGGTGAGGGCCGG
GGTCAGTGGTGGAGCCCCTTGGGGGCCACTGAAGGACTCTGGCTGTCCTCGAGTGACATTAGGAGCTGT
TGGGGAGTTTTGAGCTGAGGAGTAAGGTGACGGACAAGTGGTCGCAGAGGCCACCCGGCTGCCACGAAC
AGCAGCAGAGACAGCCAAGGGGAAGGGTGGGGGGCTGTGGTGACCCCGGGAGGGTGGTGATGGTGGCCC
GGTGAGGCCCTAGCTCACGCTGGCGGCCCTCCGCTCTCCGGCAGATCACCTACAGCGCCATCAGTGACG
AGCTACGGGACAAGCAGCGCTTCCCGGCCCTTCTGCCCACAGCGCCGGGCGCCGATCACCAGATCGAGG
CCATGGTGCAGCTGATGTTGTACTTCCGCCGGAACTGGATCATCGCGCTGGTGAGCAGCGGCGACTGCG
GCCGCGACGACAGCCAGCTGCTCAGCGATCGCCCGGCCGGCGGCGACACCTGCATCGCCTTCCGGGAGA
CGCTGCCCATGCCCCAGCCCAACCAGGCGGTGACGCAGTGGGAGCGCCGGCGCCTGAAGGCCATCGTGG
ACGAGCAGCAGCGGCAGAGCTCTGCGCGCGTCGTGGTCCTGCTGTCGCCAAAGCTGGTCCTGCACAACT
TCTTCCGCGAGGTGCTCCGCCAGAACCTCACGGGCGTCGTGCGGATCGCCTCCGAGTCCTGGGCCATCG
ACCCGGTCCTGCACGACAGGCCCACGCGCTGCACAGCCTCCTGGGCTGCACCCAGACCAGCAGCTCCGG
GTCGTCTATCCCTGGCAGGTGAGGCCCCACCCACGGAGAGTCGGGGCCACACACGCAGGCGCCGCCACA

Figure 7C

GCCCTGAGTGGTTGCCATGGAGACCACTGCCCTGCTCTAGCGTCCCCCTCTCTGGCCGGGTCCTGGGCA
AACTGGCGGGAGAGGCCAGGGGACGTACCCTGTCCCCAGACACATAAAGCCAGAAGTGCTTCATGGTGA
CAAAACTCCTTTTTTTACATTAATGTAATCCTCGCCATCCAAGATAGCCTGTCCCGGCAGGAGATTTGG
GTGAAGTTTCCTGGAAGGAGGCCTGGCAGGCAGTGGGCCCCCTGGGCCCCCTGCCGTTTCTCCAGGGTG
GCGGCCTTGGGGGAGGACTTCTGTGTTCAGCTCTCTGAGGCTCTGCTTTGGGTTTATGCATCTTCTCTC
GTCCCAGGTCTGGACGATTCAGAGGAGTAAGGAGGCAAGGAGTCGCCTGGATTCAGACCTGGAATTTAA
ATCTGTATTTTTCTGATCTGCGTGCACACCCGCGCGTGCACACACACACACCTAACCACGAAGTTTATG
TAGGTAGAAGATTTTACTGAGGGGGCGCCTGGGTGGCTCAGTCGGTTAAGCGTCCGACTTCAGCCAGGT
CACGATCTCGCGGTCTGTGAGTTCGAGCCCCGCGTCAGGCTCTGGGCTGATGGCTCNNNNNNNNNNNNN
NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNAGCACCCCGAGGGCCCGGGGGAGGGCACCTGAGCC
CGTAAAGGGAAACAGGAGTGGCCTCTGAACCCAGGTGATAGGTCTCCGCTGGATGGCAGACGTGACTCC
CACGGGAGCAGGAATAATGTCGACACATCGGCCGGAAGGGGAGCACTTCCTGGTGTGCAGTCATTGTGC
TAAGCTCCCAACATTGGGAAACTCATGCGTTGCTTCAGAGCCCGGGAGACAGGGTTTTTGTTGTCCTAC
TTTACAGAAGAGGAGACTGGAGCTCACGGGGGTTGGGCGACAGGCCCGAGGCTCAGAGCAGGTGGCAGA
GCTGGTGCCTGAACCCAGGTGTGTCTGACTACAGAGCCGGGGCTCCCAGCCGCTGCCTCCCGGGTGACC
ACATCTGCGGTCTCATTGCCCCCTTGTAGGGATGTGGACACCCAGTCTCGTGGGGTAGTCACTCTCCCC
CGGATCGAGCCCGACTTCTTTTTTTTTTTTTAATTTTTTTTTCAACGTTTATTTATTTTTGGGACAGAG
AGAGACAGAGCATGAATGGGCGAGGGGCAGAGAGAGAGGGAGACACAGAATCGGAAACAGGCTCCAGGC
TCCGAGCCATCAGCCCAGAGCCTGATGCGGGGCTCGAACTCACGGACCGCGAGATCGTGACCTGGCTGA
AGTCGGACACTTACCCGAATGCGCCACCCAGGGGCCCAGATCGAGCCCGACTTCTGACGCCAGCGTCGC
TTCCTTTCCCTGTGGCCTCCCAGCTGCTTCAGGAAATCTGGAAGGTCAACTTCACCCTCCTGGGCCACC
AGATCTTTTTTGACCAGCGAGGGGACCTACTCATGCGCCTGGAGATCATCCAGGGACGGTGGGACCTGA
GCCAGAACCTTTCTGGAGCGTCGCCTCCTACTGCCCGGTGCTACGACGGCTGAGGGCCATCCGTGACGT
CTCCTGGCACACGGCCAACAACACGGTCAGCTCTCGGAGGGCTGGTGGGGGGCTGGGACCTGGGTCTGG
GCACTGGCTCGTGCAGGGGTGGCAAGGGCCCTGTGGACCTGAGATCCATTATCGAGCACTGATGTCATC
CCTATTTGTGGGTGTCCCTCCTCCCATTGACTAAGCACTGTGGAAGTCTAGAGCTTTCTGGATCCTCAG
GACCCAGGGGCTCAGGGGGCTGCACAAAGTGAACGTTAGGTGGACACGTGTGTGCTAAGGACTTCAATT
CTCATGTCAACCCTAGGAAATAGAGAGTACTGTTCCTCCTGTCTTTGGGGTTGGGAAACTGGAGGCACA
GAGGGGGTCGCGTGACCCATAAAAGGCCACACAGCTTTCGCATGTCTCTATACACAGCATTCAGTCTAC
ATCCCATCGATTAGTACTCGCGTTTTGGGGACAGTAGCTGTGCCTTCACCTGTGTCTGACATCTGTCAG
TCTGAAAGCTCCTTTGTTTTACCCTCTTAGCTTACAAGCTGTCAGAATGGCCGCGATGTGGGGAAGGTA
GAGACTCAGCCTCGTGGGGAAGGGGGGAGGTGGGGGGACCTAAAAGTTCAAAGAGCCAGGGCACCTGGG
TGGCTCAGTCAGTTAAGCATCCGACTCTGGATCTCAGCTCAGTCTTGATCTCAGGTCGTGAGTTTAGAC
CCCTGTGTAGGGCTCCGTGCTGGGCGCGCAGCCTACTTAAAAATAATAAAAACAAAAGCNNNNNNNNNN
NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNGATCCCCGTGTCCATGTGTTCCAAGGACTGCCAGCCT
GGGCAAAGGAAGAAGCCCGTGGGTATTCATCCCTGCTGCTTCGAGTGTCTCGACTGCCTTCCGGGCACC
TTCCTCAACCAAACTGCAGATGGGACTCACAGACCCACACCCCTGCCCTGCCCTGCCCTGCCCCGCCCT

Figure 7D

GGGGCTCCCAGGGCCCTTCATCTTTGGCAGGGTCTCTGGAGTCTCATCCAGGGGACACAGGTGTCCAAA
GGCCAGGGACCATGTTTTGACTCCGCTTGTATCTCCCTAACCGCTGGTGTAAGAAAAATCTTCAATGCT
GTGAGGGCGTGGGGGTGGGAGAAGGAACAGCCCTCAACCAGGCGAGGCTGTAACTGATCCCCTCTGCAC
ACACATGTAGCTGAGGGCCCAGGGGGGTCAGGCCAGAGAATGTCCACCGGATGAACGAACGAATGAATG
AATGAACGAACGAACAAACACACAAATGAATGAATGTCTCTGTCCGTAGAAGAAATGTTTCTGGCAGAC
AGGGCTAGGATCTAATTTCTCTCTGTGGCCTCCCGAGTGCCTCGTGTAGTTCGGAGCATATAATGTTTG
CTCAGTGAATGTTTATTGAGTGACATCCTTGATGAGAAGAATTGACATCTCCCCCTATAGATCATAAAC
TCCAGGAAAGGGGGGACAATGTCATCCCTCCAGTGTTTACCACAGTTCACCGTTGGGGCCGAATTATTT
TTTTTTCATGACTTCACAGATTAGTAACTAAGCGGTTCTGTACATCTACCGATCAGAGTACTTACGACG
TGCCCAGCAGAGCCCAGGGCACAGGGTAGGTGCTCAACAAAAGTTTGTTTGCAATTGATCAGTAGCCGG
AAGTCAGGGGGCTCGGTTTTATCCACGTCTGTGCTCTCCATCTCAGATGCCTATCACAGTGGGTGGCGC
TCAAAAAGAAACTTGAATAAACGGTCGAATGTCCATCTCACCAGAGGGTACGGTCTTGGAAGGGAGGCA
TTACGGTTGCCAGGCTCTGAGTCAAGGGGACCTTGGACCACATCCTGCCTCTGTAACTGGTTTTGTAAC
NGCCTGGAGGAGCCTCAGATGCCACATCTGTGAAATGGGGTTGCAGTGAGGATCTGATGGGCCGGTGGA
TACGAGGGACGCAGTGAGAGGTGCTACGACCGCAGGCATCGCCCTTGGCTCGCCCCCTCCCTACCCCTA
CAGCCGGCCGGGTGCAGGTGCAGAGGATGTGGGTGCCGGGAAGGTGGGTGTATCTGATGGAACTGCTGT
GGGCTCTTGCAGACGAGTTTGGCTGCCGGCCCTGCCCGAGTTGCGGGTGGTCCCGGAGGAACGACGCTT
CGTGCTTCAAGCGGCGGCTGGCCTCCCTTGAATGACGCGAGGCACCCGCCGTCGCTGTGGCCGTGCTGT
CCATCCTGGGCTCCCTCTGCACCCTGGCCATCCTGGTGATCTTCTGGAGGCACCGCCACGCGCCCATGG
TTCGCTCGGCCGGGGGCCCCAGGTGCTTCCCGATGCCGATGCCCCTGCTGTATAGGTGACGGTCTCCAT
GTACATCGGGCAGCCCGCGTTTTTCATGTGCCTCGGCCACCAGACCCTCTTCACCCTCTGCTTCACCGT
CTGTATCTCCCGTGTCACCGTGCGCTCTTTCCAGATCGTCCGCGTCTTCAACATGGCCAGGCGCCTCCC
GCGTGCCTACGGCTACTGGGTCCGCTACCACGGGCCCTGTGTCTTCGTGGCGTCCTTCACGGTGCTCAA
GATGGTCATCGTGGCGGGCAACGTGCTGGCCGCGACCGCCGAGCCCGCCGCCCGCCCCGACCCCGATGA
CCCCAAGATCGCGGTTCTCGCCTGCAACTACCACAACGTGCTCCTGTTCGACACCAGCCTGGACCCGCT
TCTGTCCGTGGCGGGCTTCGGCTTCGCCTACGTGGGCAAGGAGCTGCCCACCACCCACAACGAGGCCAA
GTTCTTCACCTTCCGCATGACCTTCTACTTCACCTCTTCCATCTCCCTCTGTACCTTCATGTCTGTCTA
CGAGGGGGTCCTGGTCACCATCCTGCACCTCGTGGTGGCAGTGCTCAACCTTCTGGGCGCTTTGGCCCC
TGGGCTACTTCGGCCCCAAGTGCTGCGTGGTCCTCTTCTACCCGGATCACAACACGCCCGTCTACTTCA
GCAGCATGATTCAGGGCTACACCACCGGGAAGGACTAGCACTGCCCCCTGGCTGCCCAGGGGGCCAGAG
GGCTCGGTACTGGGAGATGGAGACCAGGGGTGGGGCTGGGGGTGGTGGTGACTCATTCAGCCCCTGCTG
GGAGCAGGGACACCACCCCGCCCTACTCTCTGATTTGGCCTCCCCCTCCAGGTTCTCTGCACCCTGGCC
GTTTTTACCCACCCGCTGGTGGATGCCTAAAAATACGCTTTCCCTGCAGCCGTTTGGCTTGCCAGGCAC
TGCCACCCATGCTAGGGAAAGGAGCCGGGGTGACCTCCCTATGGGTCTCCAAGACAGAGATGGAGCGAA
GCAGCCCACAGTCGCCATCTGGTGGTCACAGCGGGTGTCCGCAGGTTCCGGCTCCGGGCAGCCATGCTG
GAAGGCTGGGCTGGGGCTGGTGTTGGGGGACATCTGCCCGGCATCATTCACTCCCTGCCCACGTGTCTG
CGCCTCACCTCCCAGACTCCCCCGCCCCCCAGCTTGGGACCCAGCTTGGGACCCAGCTTCTCTGAGTCA

Figure 7E

TGGCTGCGCATAGGGGCTGCTTCATAAATGCTTATGAATAAACCTCCCTTGGGTGAAACGAAGGCGTTT
CCTTCTTGTTTCCAGAGGTTTCCCCCCTCCCCCCCCCGTCGCCCCAAGAAAGAAGACTGGGATCAGAGA
CCTCAGCTTCCATTTCCGCGTTGCCACTTCTGANCCGTGTACTTTGGGCCAATTCTATTTACTGTTTCG
GANCCTACACGGNCCCTTTCCTNAAATAGGAACAATAAACCAGGGGCACCTTTGACNCACTGTGTAGTA
NCCAATTTGACGATAANTTTTTTTAAAAGATTAAATTAATCNGATAAATT